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DIESEL RAILWAY TRACTION

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THE RAILWAY GAZETTE

33, TOTHILL STREET, WESTMINSTER, S.W.1

British Railways Inter-Regional Adjustments

SEVERAL railway routes, stations, and goods depots are involved in the programme of inter-regional adjustments of the Railway Executive. The lines or stations are those which penetrate from one Region into the boundaries of another, and which can be transferred into the Region to which it is thought they belong more logically under the new railway organisation. In most cases these lines originated as competitive penetrations by one railway company into territory also served by another. Examples of the transfers already approved, and now being implemented by the Chief Regional Officers concerned, include: the London, Tilbury & Southend Section of the former L.M.S.R., which is being transferred to the Eastern Region; all sections of the former L.M.S.R. in South and Central Wales, which are being transferred from the London Midland Region to the Western Region, thus placing the whole of the railways in South and Central Wales under one Regional management; and outlying branches and depots of the former L.N.E.R. in Lancashire and Cheshire, which are being transferred from the Eastern Region to the London Midland Region. The text of an official Railway Executive announcement listing the re-allocations already approved is given on another page. Proposals are in hand for several similar transfers. Most lines or stations which belonged jointly to two or more of the former railway companies have now been placed under the management of a single Region in each case.

* * * * *

The Last of the Cheshire Lines Railway

Another change, although not involving a transfer from one Region to another, was taken on November 30, when the separate organisation of the Cheshire Lines Railway was discontinued. The London Midland Region has announced that, under the regional organisation of the British Railways, from December 1 communications and enquiries formerly addressed to the Secretary & Manager of the Cheshire Lines should be addressed to appropriate officers of the London Midland Region. This amounts to dividing the organisation of the Cheshire Lines among seven district officers, four for freight train traffic and three for passenger train traffic. Freight train matters affecting Manchester Central Station are in the hands of the Eastern Region. It will be recalled that, before nationalisation, the Cheshire Lines Railway was in the hands of a Joint Committee, which was a separately-incorporated statutory body, owned latterly in the proportions of two-thirds L.N.E.R. and one-third L.M.S.R. When the British Transport Commission took over, at the beginning of the year, the Cheshire Lines were assigned to the London Midland Region, but continued to be worked as a separate organisation. The distinctive place in the structure of the British railway system occupied by the Cheshire Lines Railway formed the subject of an editorial article in our issue of December 26, 1947.

* * * * *

Beira Railway Purchase Terms

Negotiations which have been proceeding for some months between the Portuguese Government and the Beira Railway Company, with a view to finding a solution to the problems brought about by the purchase of the share capital of Rhodesia Railways Limited by the Southern Rhodesia Government in April last year, have terminated in the purchase of the Beira Railway by the Portuguese Government for £4,000,000. The Portuguese Government had the right to expropriate the line in 1956. The directors are understood to have agreed to recommend acceptance of the terms at an extra-ordinary meeting to be called for that purpose, and it is expected that payment will be in cash. The agreed date of the sale is understood to be April 5 next. Assets of the company, which was registered in 1892 and constructed the railway from the Port of Beira to the Eastern Frontier of the then British sphere of influence in accordance with a clause of the Treaty of 1891, consists of 203 miles of 3 ft. 6 in. gauge line connecting the Port of Beira with the Rhodesian railway system, together with various station and other buildings. Because the company has no rolling stock of its own the system hitherto has been worked on its behalf by Rhodesia Railways Limited. The financial position is referred to in our news pages this week.

South Wales Ports

The new issue of the handbook on the South Wales ports, now published by the Docks & Inland Waterways Executive, draws attention to the fact that these ports have suffered economically as a result of the late war, during which they handled more than a third of the country's essential exports and imports. The preponderating trade of these ports before 1939—coal, iron, and steel—were among those traffics which had to be sacrificed to the exigencies of war, and the ports were called on to deal with vast quantities of machinery, military equipment, and foodstuffs. Since the end of the war the traditional local traffics have been slow in returning, particularly in the case of coal, and larger ports such as London and Liverpool have been getting the lion's share of the current general overseas trade. Strenuous efforts have been and are being made, however, to attract to South Wales a share of the increased trade which is essential to national economic recovery. It is to be hoped that the excellent facilities afforded by Cardiff, Swansea, Newport, Barry, and Port Talbot will not be much longer neglected by our economic planners.

C.P.R. Condensed Timetables

On his arrival in a strange land, the traveller faced with various customs formalities and with scant knowledge of the country before him, often feels a sense of bewilderment and a desire to be dispatched to his destination as soon as possible. To such a person, as well as to visitors and business men already well acquainted with the country they are visiting, condensed railway timetables of the type issued by the C.P.R. can be little short of invaluable. These timetables, which are intended expressly for passengers arriving in Canada by Atlantic steamship, cover services on the principal Canadian Pacific through routes, and where detailed particulars are required on stops, branches and other similar matters, copies of a separate folder are supplied on application. A handy booklet form has been selected for the timetables, and they incorporate a number of maps and other details of general interest to the traveller.

Encouraging Young Railway Engineers

To celebrate its jubilee, the American Railway Engineering Association instituted a drive on June 1 to attract new members. At the same time, new regulations governing membership of its 15 to 20 committees came into force. These regulations are designed to attract men to the Association by encouraging initiative among its younger members and by giving them the opportunity to serve on committees if they wish to do so. Between January 1 and May 31 a total of 141 new members had joined, but as a result of the new drive no fewer than 500 joined between June 1 and September 24, or at the rate of about 30 a week. So rapid an influx is making the task of the Secretary in implementing the new regulations a difficult one, and he is asking all members to send him the names of the committees on which they wish to serve, so that the minimum of delay will occur. The prospect of being able to take an active part in the functions of the particular committee or committees in which he is most interested is, therefore, proving attractive to the young engineer.

Protection for Timber Viaduct

About three years ago the Chesapeake & Ohio Railroad decided as an experimental measure to protect a long timber trestle viaduct near Cincinnati against decay and attack by insects and fire. One half of the viaduct was laid with transverse pine sleepers, pressure-treated with 1 lb. to 1½ lb. of chromated zinc chloride per cu. ft., and 3 in. × 4 in. × 10 ft. filler timbers, similarly treated, also were inserted between the sleepers. A continuous timber deck immune from decay and insect attack and resistant to fire was thus provided for the protection of the timber trestling in that half of the bridge. This decking was further protected with an application of Kopper's clear non-flammable sealer to check any leaching of the chromated zinc chloride from the sleepers or timbers. Moreover, to prevent any possible spread of fire in the timber approaches, entire trestles at intervals of 125 ft. were provided with corrugated Transite sheeting in creosoted timber frames,

which not only protected them completely, but also extended several feet laterally beyond them. Recent inspection has shown the protected half of the viaduct to be in first-rate order in all respects, whereas in the other half considerable checking in the timber is noticeable.

Electrical Resistance of Treated Sleepers

As the viaduct referred to in the last note is 1,431 ft. long, and is in a track circuit 2,200 ft. in length, tests had previously been carried out to ascertain whether the chromated zinc chloride treatment of the sleepers would affect their electrical resistance: 26 southern yellow pine sleepers, each 7 in. × 9 in. × 8 ft. 6 in., were pressure treated with various intensities of the salt, and compared with four untreated; 12 had 3 lb., 12 had 1½ lb., and 2 had ½ lb. of salt per cu. ft. Standard bearing plates, 7½ in. × 13 in. × 18 lb., for 131-lb. track, were fitted to these 30 test sleepers, two ⅝-in. × 6-in. cut spikes being used to secure each. Various methods of attaching them—such as boring different numbers of holes before and after treatment—had little or no effect on the resistance of the sleepers. Resistance was measured with a Wheatstone bridge, weekly at first and later every three months, the sleepers being weighed whenever measured to show changes in moisture content. Results showed that the treatment would not be seriously detrimental to track circuiting provided a reasonable seasoning period was allowed. Before the sleepers had been treated, the track-circuit batteries had an average life of 155 days, but immediately afterwards the figure fell to 94 days; then it gradually rose to 147 days.

Collapse of a Firebox

The report of Mr. J. L. M. Moore on the accident which occurred to the engine of the 9.25 p.m. express, Glasgow to London, near Lamington on March 7, 1948, a summary of which we publish in this issue, shows that the firebox collapsed from shortage of water. The unfortunate enginemans were running with the left-hand water column cut out, although it was actually capable of telling them the truth, and the right-hand one, on which they had been told to rely, useless by reason of the top and bottom cocks being in disagreement; a grave defect still untraced despite several reports from drivers that the gauges were calling for serious attention. At some stage in ordinary work on the gauge, the handle must have been put back on the wrong square. Unfortunately, a certain defect in the left-hand gauge, though not one such as to make it indicate wrongly, led to a fitter to conclude falsely that it was on that one that the parts were wrongly assembled and to the gauge being put out of service. Mr. Moore, who had to hear some 40 witnesses, holds a leading fitter responsible for the accident, as it was his plain duty to make certain that every defect had been discovered and both gauges made to work correctly.

American Gas Turbine Locomotive

Considerable progress has been made in the United States in the design and construction of the pioneer coal-burning gas turbine locomotive. In this venture the Allis-Chalmers Manufacturing Company has joined forces with the Locomotive Development Committee of Bituminous Coal Research, Incorporated. A simple open cycle was decided on, incorporating a regenerator; and a d.c. generator, gear-driven by the prime mover, was chosen to supply power to an electric transmission system. An interesting feature of the design is that it will operate equally well on fuel oil as on coal; the former probably will be used when power is needed for brief intervals, as, for example, when starting. The turbine and the compressor are co-axial, so that the axial pressure on the spindle of the former is opposed by that on the rotor of the latter. Under normal operating conditions, the rated turbine speed is 5,700 r.p.m., at which 4,120 b.h.p. is delivered to the reduction gear; thermal efficiency is then about 24 per cent. The reduction gear comprises a pinion between two low-speed gears driving the main-generator shafts. A two-shaft generator having two armatures on each shaft was decided on as giving a symmetrical arrangement. For starting, two of the generators act as motors, power being supplied either by the battery, or by an auxiliary diesel-driven generator. A description of the turbine unit is published elsewhere in this issue.

Shorter Trains and More of Them—VI

It may seem unnecessary to devote an article to the application of this principle to the train services of the Scottish Region, where the internal passenger traffic is not very heavy and the one important inter-urban service—between Glasgow and Edinburgh by the old North British route—has just been revised, largely on the methods we are now advocating. The principal expresses with which we shall deal are, of course, those coming from south of the border, with their subsidiary services from Edinburgh and Glasgow to Aberdeen, but the Scottish Region timetable is capable of much improvement, both by the restoration of broken connections and by greater use of routes over which the train service has deteriorated greatly since the grouping.

We are not suggesting the resumption of long-distance services which are obviously now considered redundant—witness the uncompromising attitude of the authorities to any Euston and Edinburgh (Princes Street) through trains—but there seems to be no adequate reason for leaving the lines from Carlisle to Edinburgh (Waverley) and to Glasgow (St. Enoch) so poorly served, when they touch intermediate towns of far more importance than anything on the old Caledonian route to Carstairs. In the more sparsely-populated areas some improvements must be made if these remoter districts are to attract tourist traffic, and there are cases where such a large proportion of the present passenger service has to be piloted that, notwithstanding the stock excuse of "single-line difficulties," an increase in the number of trains appears desirable.

East Coast trains from Kings Cross and Leeds, the proposals made in Article II on August 27, would arrive at Edinburgh (Waverley) at 1.10, 2.10, 4.10, 5.10, 6.10, 8.10, and 10.10 p.m. and at 12.10 midnight, with semi-fasts from Newcastle due at 10.55 and 11.55 a.m., 4.55, 7.55, and 8.55 p.m. Working on these suggestions, we propose fast trains to Dundee and Aberdeen at 7.30 and 9.30 a.m., 12.30, 2.30, 4.30, 6.30, and 8.50 p.m. These trains would run to Dundee in 95 min., calling only at Kirkcaldy (38 to 41 min.) and Leuchars (78 to 80 min. from Edinburgh), and from Dundee to Aberdeen in 105 min., calling at Arbroath (22 to 24 min.), Montrose (46 to 48 min.), and Stonehaven (81 to 83 min. from Dundee), so that 3 hr. 25 min. would be the "express" schedule from Edinburgh to Aberdeen. Semi-fasts to Dundee would take 2 hr. from Waverley, and call at Haymarket, Inverkeithing, Burntisland, Kirkcaldy (46 to 49 min. from Waverley), Thornton, Markinch, Ladybank, Cupar and Leuchars. Fast trains to Perth would leave Edinburgh at 7.40 and 9.40 a.m., 1.40, 5.40 and 8.40 p.m., and take 1½ hr. on the journey with stops at Haymarket, Dunfermline, Cowdenbeath and Kinross—a very easy schedule, to cover the severe engineering slacks now operating on this route. The hourly services to Glasgow should leave Waverley at 20 or 25 min. past the hour.

In connection with the departures from Edinburgh to the south at 8, 9, and 10 a.m., 12 noon, 2, 4, 5, and 7 p.m., and with Newcastle semi-fasts leaving at 8.10 and 10.10 a.m., 1.10, 4.10 and 5.10 p.m., expresses would leave Aberdeen at 6.15, 8.15 and 10.15 a.m., 12.15, 2.15, 5.15 and 6.15 p.m., on a slightly easier schedule of 3½ hr. but with the same stops as on the down run, and semi-fasts from Dundee in 2 hr. would be due at Waverley at 8.40 and 10.40 a.m., 12.40, 4.40, and 7.40 p.m.

Departures from Perth would be at 8 and 10 a.m., 12 noon, 2, 4, 6 and 8 p.m. (the last-named being the balance of an early morning train at about 4.40 a.m. from Edinburgh, outside the limits of our day service, which is required to restore connection between the East Coast night trains and the "Highland" mail from Perth, cut by the coal crisis cancellation of the 4.15 a.m. from Waverley), and run at a schedule of 1½ hours. As the arrivals at Waverley from the north would therefore be at 30, 40 and 45 min. past the hour (the 40 and 45 min. arrivals not, however, operating in the same hour), the regular arrivals from Glasgow should be at 35 or 40 min. (they have independent access from Saughton into Edinburgh) for connection reasons. It is not intended, of course, that trains arriving at Waverley from the south should actually terminate there, and all passengers be changed. Through workings to Aberdeen, Dundee, Glasgow or Perth would be practicable in many cases, both with express and semi-fast sets, and at least

two day services from Kings Cross would run through to Aberdeen.

No great alterations are proposed in the day services over the Waverley route between Carlisle and Edinburgh, save that to give better communications between the West Coast route in England and the border towns, the present 1.25 p.m. from Carlisle (4.20 arrival at Waverley) would be a through train from Lancashire, arriving at Carlisle from Preston at 1 p.m., the 7 p.m. from Carlisle would run 55 min. earlier and be a through train from Euston at 12 noon, connecting at Waverley with the 8.40 (Perth) and 8.50 (Aberdeen) departures, and there would be one new service from Carlisle to Edinburgh at about 11.15 a.m. (off the 9.15 a.m. from Preston) arriving at Waverley at about 2 p.m. The 12 noon from Waverley to Carlisle would be a through service to Euston, going forward from Carlisle at 2.45; the 2.35 p.m. from Edinburgh would run earlier to connect at Carlisle with the 5.45 p.m. to Euston; and a new train with a through portion for Lancashire to join the 5.30 p.m. from Glasgow (7.45 from Carlisle) would run from Waverley at about 5.5 p.m. There would be only one through day service, now 8.55 a.m., from St. Pancras to the Waverley route, but to give later departures to Scotland from the Midland towns, consideration should be given to the running of one of the Kings Cross-Edinburgh trains from Marylebone to York, calling at Aylesbury or Wycombe, Leicester, Nottingham, and Rotherham. The most suitable service for such an experiment would probably be the 12 noon, 8.10 p.m. into Waverley, though it would have to leave Marylebone at about 11.20 to fall into its proposed 3.47 timing from York.

Trains from the West Coast route, it will be recalled from Article III of October 1, would leave Carlisle for the north at 11.5 a.m., 12.5, 1.5, 2.5, 3.5, 4.5, 6.5, 7.5, 8.5, and 9.5 p.m. The 11.5 a.m., 1.5, and 8.5 p.m. would be Lancashire services, the 12.5 p.m. would come from Birmingham, and the remainder from Euston. With moderate loads, the suggested 90 min. booking to Carstairs would admit of one stop at Lockerbie or Beattock, and we suggest Beattock on the 11.5, Lockerbie on the 12.5 and 2.5, and both on the 9.5 p.m., which, with a call at Motherwell, would be at Glasgow at 11.20 instead of 11.15. A stop at Motherwell is also suggested on the 12.5 and 8.5 p.m. from Carlisle. The only other alteration proposed, on the original scheme, is to the 6.5 p.m. from Carlisle (12 noon from Euston), the Glasgow portion of which should run over the old G.S.W.R. route, leaving at 6.15 and calling at Annan, Dumfries, and Kilmarnock, and running either to St. Enoch or Central, as might be more convenient.

There would be services from Carstairs to Perth at 12.50, 4.50, and 8.50 p.m., taking 2 hr. on the journey and calling at Motherwell, Coatbridge, Larbert, Stirling, and Gleneagles, and at 9.50 a.m. and 5.50 p.m. to Stirling, a 70 min. journey with Motherwell, Coatbridge, and Larbert stops. The 4.50 and 8.50 p.m. from Carstairs would be through trains from Euston to Perth, but no through portions by day are proposed between Euston and Aberdeen, though all five trains from Carstairs will be found to give good connections, at Stirling or Perth, for Aberdeen and the Highland area.

Semi-fast trains from Carlisle to Glasgow (Central) are proposed at 8 a.m., 5.10 and 7.15 p.m. The 8 a.m. would be at Carstairs at 9.35 to 9.39 and Glasgow at 10.20, with Lockerbie, Beattock, Symington, and Motherwell stops, and would connect at Carstairs with the 9.50 to Stirling and the morning service from Glasgow to Inverness (now 10.10, but made about 20 min. later). From Carlisle to Glasgow (St. Enoch) expresses would leave at 12.55 (the present 10.25 a.m. from Leeds, running earlier), 5 (9.40 from St. Pancras) and 6.15 p.m. (12 noon from Euston), with semi-fasts at 7.25 and 10.40 a.m. and 7.20 p.m.

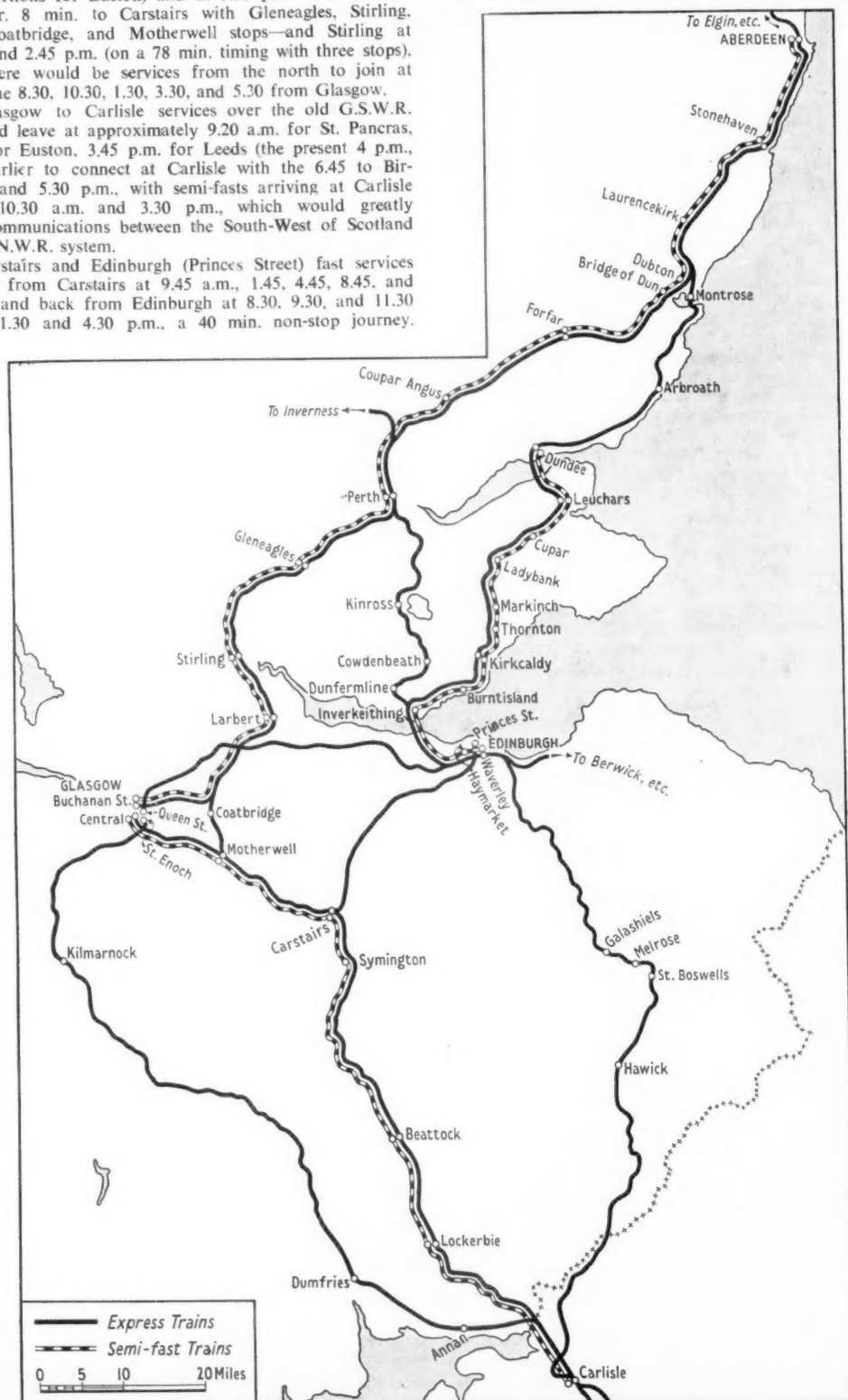
Coming south, departures from Glasgow would be at 8 and 11.30 a.m., and 5.30 p.m. for Preston and Lancashire, at 4.30 p.m. for Birmingham, and at 8.30, 9.30, and 10.30 a.m., 1.30 and 3.30 p.m. for Euston, the only variation from the scheme outlined in Article III being that the 12.30 p.m. would leave at about 12 noon, and run to Carlisle via Kilmarnock and Dumfries. Semi-fasts would run from Glasgow to Carlisle at 9 a.m., 12 noon, and 3 p.m. (as well as the old "Upper Ward" express at 4.45, which is outside this scheme), and Motherwell stops would be made by the 8 and 9.30 a.m. and the 4.30 p.m. expresses, the 8 and 11.30 a.m. and 5.30 p.m. departures calling

also at Lockerbie and the 4.30 p.m. at Beattock. Trains for Carstairs would leave Perth at 8.55 and 11.55 a.m. (both with through portions for Euston) and at 3.55 p.m.—the schedule being 2 hr. 8 min. to Carstairs with Gleneagles, Stirling, Larbert, Coatbridge, and Motherwell stops—and Stirling at 7.45 a.m. and 2.45 p.m. (on a 78 min. timing with three stops), so that there would be services from the north to join at Carstairs the 8.30, 10.30, 1.30, 3.30, and 5.30 from Glasgow.

The Glasgow to Carlisle services over the old G.S.W.R. route would leave at approximately 9.20 a.m. for St. Pancras, 12 noon for Euston, 3.45 p.m. for Leeds (the present 4 p.m., running earlier to connect at Carlisle with the 6.45 to Birmingham) and 5.30 p.m., with semi-fasts arriving at Carlisle at about 10.30 a.m. and 3.30 p.m., which would greatly improve communications between the South-West of Scotland and old L.N.W.R. system.

The Carstairs and Edinburgh (Princes Street) fast services would run from Carstairs at 9.45 a.m., 1.45, 4.45, 8.45, and 9.45 p.m., and back from Edinburgh at 8.30, 9.30, and 11.30 a.m. and 1.30 and 4.30 p.m., a 40 min. non-stop journey.

Through portions would run between Lancashire and Birmingham and Edinburgh, and the new through services proposed between Carlisle and Edinburgh by the old Waverley route



Map showing principal routes in Scotland mentioned in this article, together with suggested stopping places of express and semi-fast trains

must not be overlooked, but the vexed question of Euston and Edinburgh (Princes Street) through working is outside this scheme.

We come now to the Glasgow (Buchanan Street), Perth and Aberdeen services, and their Highland connections. A 3 hr. 20 min. express schedule is suggested from Glasgow to Aberdeen—85 min. from Buchanan Street to Perth with one stop at Stirling, and 110 min. from Perth to Aberdeen, calling at Forfar and Stonehaven. Semi-fasts would take 3½ hr.—93 min. to Perth, stopping at Larbert, Stirling and Gleneagles, 10 min. at Perth, and 122 min. from Perth to Aberdeen, with calls at Coupar Angus, Forfar, Bridge-of-Dun or Dubton, Laurencekirk and Stonehaven. Trains for Aberdeen would leave Glasgow at 8 and 10 a.m., 12 noon, 2, 5, and 6 p.m.—the 10 a.m. and 6 p.m. on the 3 hr. 20 min. express schedule, and the others taking 3½ hr.—and there would be semi-fasts from Glasgow for Perth and Dundee at 7.15 and 9.15 a.m., 6.15 and 8 p.m., at 10.30 a.m. (the present 10.10) for Perth and the Highland line, and at 1.30 p.m. for Dundee and Inverness, a portion for Inverness being also worked to Perth on the 6 p.m. Aberdeen train.

The up services for Glasgow would leave Aberdeen at 6.30, 9.30 and 11.30 a.m., 1.30, 4.30, and 6.30 p.m. (the 11.30 a.m. and 6.30 p.m. being 3 hr. 20 min. expresses), to which must be added the 3.30 p.m. postal and passenger train, balanced outside our scheme by the 4 a.m. from Glasgow, and a 5.40 p.m. to Perth and Euston, balance of the 7.30 p.m. from Euston, which would run through to Aberdeen at 6.20 a.m. from Perth, for the benefit of passengers joining at points north of London, and supersede the costly and rather unsatisfactory working of a sleeping car portion from Perth to Forfar and back. These Aberdeen—Glasgow services would come through Perth at approximately 8.30 to 8.40, and 11.30 to 11.40 a.m., 1.20 to 1.25, 3.30 to 3.40, 5.16 to 5.30, 6.30 to 6.40, and 8.20 to 8.25 p.m. (the 5.40 to London, of course, would form the 8.15, at 8.5, from Perth to Euston), and Dundee to Glasgow services would leave Perth at about 8.25 and 10.30 a.m., 12.30, 3.25, and 7.30 p.m., with portions from Inverness on the two last-named trains.

It will be apparent from this brief summary that material changes are suggested in the Perth and Inverness services, and when it is realised that four out of five departures from Inverness for the south are regularly worked by two engines, and that the last departure of the day from Glasgow for Inverness is at 1.45 p.m. (and that with no connection from south of Carlisle), it seems reasonable to suggest splitting up what traffic there is by more and shorter trains, and in particular to improve the Edinburgh communication with the Highlands and reduce the marshalling work now done at Perth. We propose the restoration of a service at 9.50 a.m. from Perth to Inverness (running off the 7.40 a.m. from Edinburgh, Waverley, 8 a.m. from Glasgow, and the 10.50 p.m. from Euston, which under our scheme must reach Perth at 9.20 a.m.); an altered arrangement of the present 11.58 and 12.10 midday trains from Perth, under which the 9.40 a.m. from Edinburgh would run through to the Highland line at 11.20 from Perth, and the 10.30 from Glasgow form the 12.10 at 12.15, stops on the Highland section being distributed over the two trains; earlier running of the 3.50 p.m. from Perth at 3.25, and a new service from Perth to Inverness at 7.40 p.m., with 5.40 from Edinburgh, 6 from Glasgow and 4.50 from Carstairs connections.

Coming south from Inverness, the present 8.20 a.m. would run a little earlier to reach Perth at 11.20, a new train would arrive at Perth at 1.50 p.m. and form the 2 p.m. to Edinburgh (Waverley), and another new train would arrive at 5.50 p.m. for the 6 p.m. service to Edinburgh, and put its Glasgow traffic on to the 4.30 from Aberdeen. These new departures from Inverness, at approximately 10.20 a.m. and 2.20 p.m., would connect with the present 6.10 a.m. from Helmsdale and the 8.25 a.m. from Wick, reaching Inverness at about 10.5 a.m. and 2 p.m., while the extension to Wick of the 4.15 p.m. Inverness to Helmsdale, a summer service to Wick and now urgently needed all the year round, would be balanced by a new train from Wick to Inverness at about 12.15 p.m., meeting the 7 a.m. from Inverness to Wick at Georgemas and reaching Inverness in 5 hr., to connect with the night service to Euston. This is only a rough outline of the scheme, and subject to alteration in detail, but it would save the second engine on both the

TIMINGS SUGGESTED IN THIS ARTICLE FOR PRINCIPAL TRAINS THROUGH PERTH

Down		* Stops outside station to detach Dundee portion.																				Up																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
From

* With through portion between Glasgow and Dundee

11 a.m. and 3.40 p.m. from Inverness, the latter having only the 10.45 a.m. from Kyle of Lochalsh, which would probably take the 2.33 p.m. arrival time of the Wick train into Inverness, to feed it from the north.

The express and semi-fast arrivals at Aberdeen, under these proposals, would be at about 11.45 a.m., 1.20, 3.45, 5.45, 8.45, and 9.20 p.m. from Glasgow, and at 11 a.m., 12.55, 3.55, 5.55, 7.55, and 9.55 p.m., and at 12.20 midnight from Edinburgh, so that departures on the "Great North" main line to Elgin, where no additional services are proposed, should be at 8.5 and 9.30 a.m. (as now), at about 1.40 instead of 2.10 p.m., 4.15 instead of 3.30, 6.20 (fast) instead of 7.15, and 7 p.m. (slow) instead of 6.15, to improve the connections as much as possible. Departures from Aberdeen to the south being at 6.15, 8.15, and 10.15 a.m., and 12.15, 2.15, 5.15, and 6.15 p.m. (omitting the night "Aberdonian") for Edinburgh, and at 6.30, 9.30 and 11.30 a.m., 1.30, 3.30, 4.30, 5.40, and 6.30 p.m. to the old Caledonian line, the only alterations required over the "Great North" for connectional purposes would be earlier arrivals to the extent of 15 or 20 min. with the present 12.17 and 2.16 p.m. into Aberdeen.

Two other sparsely populated areas, the West Highland and Callander and Oban lines, require brief mention. Light though traffic is on the former, the interval with no train from Glasgow to Fort William between 5.55 a.m. and 3.46 p.m. is far too long, and the 10.21 a.m. summer service from Glasgow should be an all-year-round train, its balance being the 4 p.m. rather than the 2.15 from Fort William, starting as late as possible to give an arrival in Glasgow to connect with night trains to the south, whose passengers must now leave Fort William at

2.55. To Oban, the winter service of four day trains each way, strengthened only on Saturdays in summer, requires the regular restoration of a service between the present 8 a.m. and 12.12 p.m. departures from Glasgow, running, perhaps, from Stirling to Oban off the 10.30 a.m. from Glasgow, and balanced by an afternoon train from Oban between the present 12.5 and 4.45 p.m. departures, to connect with the proposed 3.55 p.m. from Perth to Carstairs, giving a service as far south as Preston and towns in Lancashire.

The old Glasgow & South Western line to Ayr, Girvan and Stranraer boasts a service still little less frequent, though slower, than in pre-war days, and does not call for comment, save as regards connections from Edinburgh to the south-west. These can be improved, however, via Lockerbie and Dumfries, under our proposals for the main-line, by linking up the existing 12.20 from Dumfries with the 12.5 from Carlisle at Lockerbie, and the 4.25 and 7.30 p.m. from Dumfries with the 5.10 and 7.15 p.m. semi-fasts from Carlisle. In the opposite direction the 11.30 a.m. service from Edinburgh (Princes Street) would connect with the present 1.15 p.m. from Lockerbie.

Scotland is a large area to cover in one article, and we have had to be content in many cases with a mere outline of proposals, the detailed examination of which would require far too much space. The map which appears on page 628 indicates the stopping places of expresses and semi-fasts, though there are several exceptions to the rules, and we include also approximate timings of the principal down and up trains through Perth, which may enable the suggestions put forward for the Glasgow—Aberdeen and Highland services to be followed with greater ease.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

London Midland Region Paint Laboratory

Griffiths Bros. & Co. (London) Ltd.,
Macks Road,
London, S.E.16. November 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You were kind enough to publish a letter of mine in your November 5 issue about this laboratory and research work in the paint manufacturing industry.

My letter tended to suggest that the work of the two laboratories, namely, the London Midland Region Paint Laboratory and the Paint Research Station, was the same, whereas, in fact, their respective work is quite different in character, the former dealing primarily with problems relating to the application of paints and the Paint Research Station with basic research in a much wider field.

I wish to apologise to readers for any misunderstanding which my first letter may have caused.

Yours faithfully,
KEITH L. THORNBURY,
Governing Director

Double-Deck Coaches

Longmeadow,
Prinsted, Emsworth,
Hants. November 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was delighted to see in your November 12 issue that Mr. O. V. Bulleid in his address to the British Association had brought up the subject of double-deck coaches for suburban traffic.

You referred in your issue of August 21, 1936 (pages 288 and 307) to an article I had written in *The Railowner* on this subject, and Sir Herbert Walker's reply thereto. I feel confident that double-deck coaches are practicable on the Southern Region, in spite of the restricted loading gauge, by reason of Mr. Bulleid's excellent method of construction, which gives the maximum of internal space. A great deal of this space is wasted—that is, in the upper part of the coaches. The provision of a small amount more space attained by dropping the frames between the bogies, should enable an upper deck of comfortable height to be provided.

As I pointed out in *The Railowner*, a double-deck coach which would pass through the British structure gauge had been tried on the 3 ft. 6 in. gauge South African Railways. After

trial, this coach was withdrawn, but I am inclined to think that, due to being constructed on normal lines, the interior may have been somewhat cramped.

In so many cases, especially in railway affairs, it is that little extra which makes the difference between success and failure. I confidently believe, therefore, that Mr. Bulleid's design of coach will enable us to see double-deck coaches on the Southern Region in a comparatively short space of time. May it be so!

Yours faithfully,
AUBREY F. INGLEFIELD,
Lt.-Commander,
former Hon. Secretary & Treasurer,
British Railway Stockholders Union

Shorter Trains and More of Them—IV

18, Wheatsheaf Close,
Woking, Surrey. November 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was interested in your article, under the above heading, in your November 5 issue, especially the paragraph concerning the Southern Region, and I agree with your suggestion regarding the 9.0 a.m. ex Waterloo, which is a well-patronised if not very fast train.

Although I live at Woking I do not agree that more expresses should stop here, first because communications between Woking and Redhill via Guildford are very poor as things exist, and certainly offer no advantage over travelling via London or stopping the express at Clapham Junction! Second, I think services would be slowed down a little more than one might imagine, because Woking lies near the foot of a long, though not very steep, incline; in the up direction, trains are usually travelling very fast, and in the down direction they would have their run at the bank checked with little hope of attaining 50 m.p.h. this side of Farnborough. If, as you suggest, the Waterloo departure time of West of England trains be advanced ten minutes, they almost certainly would run foul of the up Portsmouth trains that would be crossing their path at Woking.

If I may make a suggestion it is this: why not a through train, at any rate on Saturdays, from Croydon to Bournemouth via Redhill, Guildford, and Aldershot? In addition to providing a direct train from the outer suburban area to Southampton and Bournemouth, it also would connect several important country towns not at present directly connected. Strange to relate, the two most important Surrey towns of Croydon and Guildford have no real direct rail service, and Guildford has no through train to the west. Such a train would not run over busy lines and would have to be a short train because of the difficult road encountered in parts.

I might point out that the Alton to Winchester line, although only single track, can take heavy locomotives, and in the days before the war, when there was an occasional semi-fast to Southampton via this route, 4-6-0s were seen often.

Yours faithfully,

J. B. LATHAM

[Under a timetable revision scheme, if more trains called at Woking, connecting services via Guildford also would be improved, and Guildford would have better communication with the West. We have not attempted in these articles to go into details of timing over junctions, but expresses to the west, leaving Waterloo at the hour and calling at Woking, would follow the fast electrics from Portsmouth across Woking Junction.—Ed., R.G.]

Locomotives and "Bits and Pieces"

"Caldy," Belmont Avenue,
Bangor, November 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The reference, in your issue of November 19, to Mr. Bulleid's six-cylinder tank engines, calls to mind a subject which does not appear to have received the attention it deserves, and that is the multiplicity of "bits and pieces" on the modern locomotive.

Do those responsible for the design of locomotives realise that each and every nut, bolt, stud, and split-pin, etc., is a potential engine failure and cause of delay?

After thirty years of experience in locomotive running sheds, I venture to suggest that if, instead of locomotive designers competing with each other in the introduction of novelties, they were to set to work to see what "bits and pieces" could be dispensed with without impairing the efficiency of the engine, it would be "a far, far better thing." If this problem were tackled seriously, the results, I am sure, would prove surprising.

Yours faithfully,

J. M. DUNN

Threatened Closing of Branch Lines

37, Northampton Avenue,
Slough, Bucks, November 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—According to a recent speech on the future of British Railways, Sir Eustace Missenden predicted many severe measures, in closing down branch lines and many intermediate stations, and turning the remainder of the system over to entire trunk work. The true value of our local branch lines can be assessed best on their importance during the recent war years, when road transport had to be limited. Very many small towns and villages would have been cut off entirely, had it not been for its local branch line. Factories, arsenals, army camps, and other secret establishments were parked safely away in the countryside and at the same time had excellent transport facilities via some local branch.

In the light of economy, however, if many of these branch trains were withdrawn and the passenger service replaced by diesel railcars of the old G.W.R. type, the money saved on staffing and running costs would certainly justify the retention of the service, and the line left open would run at a profit.

Write to your M.P. today protesting against this British Railways decision. Service to the community must come first. On face value it appears to be the first sign of the Transport Commission failing to make things pay.

Yours faithfully,

E. A. WIGGINS

Railway Engineers' Salaries

November 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your correspondent's letter on engineers' salaries, in your issue of November 19, is today's topic of conversation in all engineering departments.

As a young technical assistant I regard myself as being one of "Missenden's young men" referred to by your correspondent. As such, may I air my views on the subject?

Within ten years the Railway Executive will search in vain for experienced men to fill the posts of Divisional Engineers and assistants. Then, and then only, will the authorities realise that the root of the trouble lies in the low salaries offered to engineers. This version has been illustrated admirably during the past few months because so many assistants have left British Railways for better jobs both at home and overseas. The older men persevere because they "are too old to emigrate."

In passing, it is interesting to note that one Region has lost ten assistants within eight weeks; such a state of affairs is monstrous, to say the least. Those men would have been the Divisional Engineers of tomorrow with years of experience behind them. Instead, they are taking their knowledge to other lands. Admittedly, other men will fill the gaps, but they in turn will leave a year later. To prevent them so hurriedly departing from the finest railways in the world the Executive must tackle the problem now.

The Railway Clerks' Association at present is negotiating an increase in salary for technical assistants. The offers made so far by the Executive have been almost insulting. The Executive should pay more attention to the claims made; if not, the position I have outlined surely will come about. Meanwhile, those of us who once pledged ourselves to British Railways, will watch developments from abroad.

For obvious reasons I must ask that my name and address be withheld.

Yours faithfully,

RAILWAY EMIGRANT

High-Speed Trains

70, Rowlands Avenue,
Hatch End,
Middlesex, November 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to the article in your November 19 issue on the new pneumatic-tyre train of the French National Railways, I would like to point out that the distance from Paris Est to Châlons-sur-Marne is 106.9 miles, and that if the train left Paris at 2.30 p.m. and reached Châlons at 4.23 p.m., as you state, the average speed was 56.7 m.p.h., not 75 m.p.h. as claimed. Presumably, the latter was the maximum speed—a rather different matter. You note, elsewhere in the article, that a speed of 80 m.p.h. was reached on a preliminary run of the regular service on which the new train is to be used between Paris and Strasbourg, and here we are not left in doubt as to its being a maximum speed.

It is refreshing to note that at least one country in Europe is realising once more that high speed is both an attraction to the public and a commercial proposition. It is now possible to travel from Paris to Bordeaux, Lyons, Belfort, and other distant cities at overall speeds closely approaching the mile-a-minute rate throughout, which is the more remarkable in view of the wartime devastation of the railways that the French National Railways have had to make good.

Yours faithfully,

Cecil J. Allen

Wagon Capping

Central Wagon Co. Ltd.,
Wigan, November 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—On page 598 of the current issue of *The Railway Gazette*, the second sentence under the above heading refers to loose cappings, and goes on to say: "A great proportion of wagons is seen to have the capping distorted, lifted up or flapping about in perilous looseness, and it is well known that in the repair shops the rectification and replacement of capping iron is quite an expense."

I am sorry to say that the author of the note is not so acute in his "observations of passing goods trains and wagons standing in sidings" as would be expected from a writer in your excellent periodical, or he would have seen that the cappings are now generally secured by clips. There was an Order dated May 12, 1944, which laid down that a clip should be fitted over cappings and secured by a bolt through the wooden wagon sheeting, which effectually prevents cappings from lifting. These clips had to be affixed to:—

- (a) Wagons built in future.
- (b) Existing wagons, in the following condition when passing through shops for repairs:—
 - (i) Requiring renewal of side, end or end door top planks, and/or cappings.
 - (ii) With cappings not secured with capping bolts.
 - (iii) With loose cappings which require securing.

There are no doubt still many wagons with loose cappings, but these now can be easily secured where this has not already been done, and an observer on the railway can see for himself the many thousands of wagons which already have capping clips affixed.

Yours faithfully,

L. T. HANSON,
Managing Director

The Scrap Heap

THE O.U.R.S.

Sir Cyril Hurcomb, Chairman of the British Transport Commission, is visiting his old university early next month. He is talking to the Oxford University Railway Society. So far the subject of his address is not known.

I should not be surprised if one object of his trip were to see what budding abilities were to be found among the Oxonian railway enthusiasts. Much freer recruiting for the higher non-technical grades of our railways has long been desired.—"Peterborough," in "The Daily Telegraph."

ABERDEEN-PENZANCE THROUGH SERVICE

This service began on October 3, 1921, and ran every weekday. It was the longest through service (785 miles) ever operated on a British railway. The Southbound service left Aberdeen at 9.45 a.m. and arrived at Penzance at 7.40 a.m. next day. The Northbound service left Penzance at 11 a.m. and reached Aberdeen at 7.40 a.m. next day.

RULES FOR ENGINE DRIVERS IN 1841

In the course of his speech at the recent annual dinner of the Institution of Railway Signal Engineers, Mr. John Benstead, Member of the British Transport Commission, quoted the following extracts from the rule book of the Liverpool & Manchester Railway for 1841.

RULE 4. All Engines travelling in the same direction shall keep 600 yards at least apart from each other, that is to say: The Engine which follows shall not approach within 600 yards of the Engine which goes before; and in coming down either of the Inclined Planes the following Engine shall not come within 900 yards of the Train which precedes it.

RULE 6. All Enginemen having charge of Goods or Luggage Trains, shall always exert themselves to keep out of the way of Coach Trains, by shunting, if necessary; and, if doubtful of getting out of the way of a Coach Train, shall direct the Gatemen and Plate-layers to make signal to Coach Trains that a Luggage Train is before them.



"Well, there she goes, sir—so we needn't have hurried after all!"

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SWEDISH RAILWAY HORTICULTURE

Flower beds, miniature parks, and garden plots aggregating more than 3,000 acres add a touch of beauty to stations throughout Sweden. As early as the 1860s the State Railways began landscape gardening at stations. In the past ten years, some 500,000 perennials, 150,000 rose bushes, 100,000 hedge plants, and 20,000 fruit trees have been planted, and £70,000 is spent annually on their maintenance. The Horticultural Department of the State Railways includes several professional landscape gardeners, seven chief gardeners, and forty gardeners. Ordinary railway staff assist in their spare time.

DOG CHASE IN TUBE

Thousands of Londoners who hurried for tube trains when they finished work because of the fog were delayed by a big black and white mongrel dog. It got on the track at Borough Station, the stop before London Bridge, and raced through five stations.

A Euston-bound train went slowly into the tunnel and followed it. At Moorgate Station, officials jumped on to the track, but could not stop the dog, which raced on to the Bank. More officials at the Bank failed to stop it, and the same thing happened at Old Street and the Angel. At Kings Cross the dog was electrocuted.—From "The Daily Telegraph."

SCALE OF TRANSPORT CHARGES

When motoring recently in the North of Scotland a Glasgow man was asked for a lift by another guest at the hotel. He wanted to go to a railway station some miles away. Unfortunately the motorist was not going in that direction.

The man who wanted the lift then explained that if a bus came in time he would be able to catch his train; if not, he would hire a car. The bus run, he said, cost 6d., while the car would cost 6s.

"Maybe some one else will be able to give you a lift in his car," said the motorist.

"Well, I'm not really too keen about that," was the reply, "for it's usually the most expensive method of all, quite often costing me 15s. for drinks."—From "An Editorial Diary" in "The Glasgow Herald."

100 YEARS AGO

From THE RAILWAY TIMES, Dec. 2, 1848

The Proposed Amalgamation between G.W.R., L.N.W.R., and L.S.W.R.

THE grounds upon which the amalgamation of the three Companies has been broken off are precisely those which might have been anticipated. The South-Western has determined upon taking its own course at Windsor, and the North-Western wished to take the lion's share of the power. Really, when such exceptions (to which we must add one on the part of the Great Western Company in reference to the gauge question) were made so early in the conferences, we are left in no little wonder that the proposition of amalgamation should have had so long an existence. Thus, after some protocolling, the three kings have informed their subjects that their "palaver" will not be held on the 13th inst.; and they leave them to infer that the campaigns of past sessions, which their majesties have all so deeply deplored, will be renewed and carried on with the vigour of former years. The words, "uncompromising opposition," have a trenchant sound: they are the first notes of the trumpet. On the other side, Mr. SAUNDERS has well put the question of the North-Western's claim to a majority at the Board of amalgamated interests; and it is not difficult to see, through the delicate generalities of his note, that mistrust and suspicion which old enmity has engendered. That which the innocent and pacific North-Western ask as due to their amount of capital, the shrewd interpreter of their latent thoughts transmutes into a "mere sale and transfer of other undertakings," &c. This graceful and elegant document (for such it is) gives a dignity to the proceeding which it would not otherwise have attained. As we have elsewhere observed, the discussion of the measure has been a pleasant pastime, upon the ingenuity of which we congratulate the parties concerned. That they were sincere in their aim we must not doubt; but that they were too mutually mistrustful, too individually ambitious, too equally self-willed and self-interested to continue long to act in the spirit of their third resolution, the event has amply proved. "Identity of interests" between these Companies is to be expected only in the railway millennium.

TAILPIECE

VAUXHALL IN THE MORNING
Corinthian shades pass on parade
And phantom doxies masquerade
Where Handel's music once was played—
At Vauxhall in the morning.

Where Araminta's tiresome airs
Invited og'es, quizzes, glares,
The Whitehall wallahs rush the stairs
At Vauxhall in the morning.

From farms and dairies, hedgerows, banks,
The milk churns came in serried ranks
(The stuff now comes in glass-lined tanks!)
To Vauxhall in the morning.

With leather jungs and husky roars
Be-whiskered porters did the chores,
But, now it's "Kaindly close the doors!"
At Vauxhall in the morning.

Thank God, the Oval still is green
And cricket-loving eyes are keen—
The old gasometer's still seen
From Vauxhall in the morning.

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Airways Results

During August, 1948, aircraft of South African Airways flew 2,895 hours and carried 10,151 passengers. With few exceptions schedules were well maintained and on internal services the percentage of disposable seats sold ranged from 65 to 70 per cent. The Skymasters on the Johannesburg-London route have also maintained their reputation for reliability and smooth performance. Few airlines in the world can equal the South African Airways in its working results. Last year a substantial surplus was recorded, and so far in the present financial year they are not losing money.

In collaboration with B.O.A.C., excursion fares were introduced between points on the Springbok route and America on October 1. This arrangement will be in force until April 30, 1949, and requires that all journeys must be completed within 30 days after commencement, except where delays occur in the schedules for return flights.

In August, 1946, the number of services operated amounted to 894, and 10,920 passengers were carried. In the same month of 1947, the figures were 1,408 services and 14,118 passengers, and the corresponding figures for 1948 were, 1,314 and 14,856 respectively.

On the internal and regional services of South African Airways for the period April to June, 1948, the number of passengers carried was 27,418, and the passenger mileage amounted to 13,676,183 miles.

The "Crown Prince" Railcar

In preparation for a tour of German South-West Africa by the German Crown Prince in 1914, the Otavi Minen-und-Eisenbahngesellschaft designed for royal use a powerful petrol railcar with a 6-cyl. Daimler-Benz engine. It was luxuriously appointed, and bore the Imperial German crest on its sides and a golden eagle on the front. On trials in June, 1914, the car, which weighed 6½ tons, reached 86 m.p.h. on the 2 ft. gauge.

The imminence of the first world war caused the abandonment of the tour, and after the colony became a mandated territory the railcar was pressed into service as a motor inspection trolley on the Usakos-Grootfontein section of the South African Railways. Its interior fittings were removed, and some went to the Kimberley Museum.

This interesting relic, which, with one gear removed, is capable of 67 m.p.h. on long straight sections, is now to be withdrawn from service. It will be housed in the Railway Museum at Esselen Park, near Pretoria, to which we referred in our issue of September 10.

RHODESIA

Working Results

Receipts (including the Beira and Shabani lines) for the five months ended August 31 totalled £4,190,271. Expenses amounted to £3,071,515, leaving a net operating revenue of £1,118,756, an increase of £445,805 over the comparative figure for 1947.

New Livery

The new colour scheme for passenger stock will be green of a rather darker shade than that used on tests in the past, as on the "Plateau Limited" stock. In the meantime, local stock is being finished in aluminium lined in green.

INDIA

New Construction Plans

The railway network serving the coalfields is to be expanded by 700 miles of new lines, doubling 200 miles of existing lines, electrification of 900 miles of railway, and the remodelling of a number of yards. The line first to be built will connect Bijuri and Barwadih on the East Indian Railway, as relief is urgently required for the Barkakana loop of the East Indian Railway serving the coalfield of Bihar. The new line, 150 miles in length, also will ease the congestion at Moghalsarai and open up the coalfields of Birsampur and Hutar. This project,

of which 40 miles are in hand, is likely to be completed by 1951.

Among lines under survey is one between Barwadih and Manikpur, Great Indian Peninsula Railway, 250 miles in length, which will provide a new route for coal towards the north-west and help exploitation of the Singrauli and Tatapani coalfields, and a stretch of similar length linking Barwadih with Talchar, Bengal-Nagpur Railway, thus providing a short cut for the transport of coal from Bihar to Madras. Also under survey are four additional branches, totalling 70 miles, which will help in the development of a number of smaller coalfields.

To increase transport facilities for coal for Bihar, United Provinces, and the East Punjab, the 81-mile line between Ekdil (East Indian Railway), and Kanpur, and the 146-mile line between Lucknow and Bareilly, are being doubled. The Government of India proposes, also, to electrify the 418 miles between Calcutta and Moghalsarai, and the Gomo-Katni Railway.

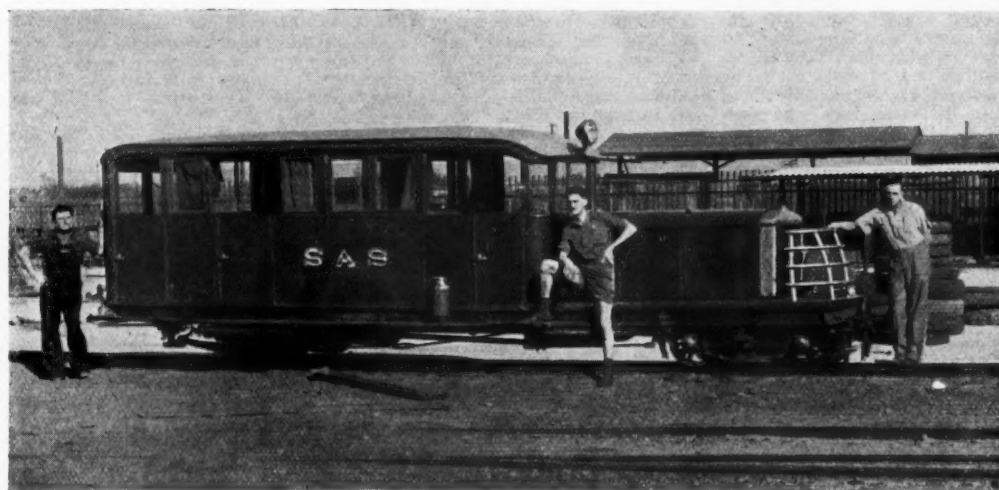
ARGENTINA

Suppression of Joint Railway Offices

The Transport Secretariat has decided that a number of joint railway offices shall be suppressed in the interests of economy and as they are no longer necessary under the new régime. Among them are the Railway Clearing House; the Joint Legal Department; the Joint Propaganda Office; and the Railway Advertising Office, which dealt with advertising on railway property. Some of the staff will be absorbed by the different railways, and others will become pensionable.

Modifications in Railway Rates

Although the basic reform of railway rates, which will be the eventual outcome of the studies being undertaken by the Railway Rates Committee, has not yet taken shape, a number of lesser modifications are being introduced from time to time. They include the abolition of special goods rates introduced to combat road competition; suppression of special season ticket rates for women, students and children; limitation of suburban section tickets to two types only (single, and day return tickets); and cutting down of the availability of tourist return tickets.



Railcar "Crown Prince" of the South African Railways which is to be placed in the S.A.R. Museum at Esselen Park, Pretoria. (See paragraph above)

UNITED STATES

New Tunnel on the Norfolk & Western

The Norfolk & Western Railway has at present in hand the construction of a new 7,135-ft. tunnel under a mountain ridge near Bluefield, in Western Virginia. Progress on the working face is stated to be averaging about 12 ft. a day. When completed, this double-line tunnel will have an overall width of 31 ft., and will measure 34 ft. from formation to the crown of the arch.

CANADA

Further C.P.R. Diesel Orders

Twenty-three diesel locomotives have been purchased by the Canadian Pacific Railway to improve services between Montreal and Wells River, Vermont. Twenty are freight and shunting locomotives ordered from the American Locomotive Company, Schenectady, and three are passenger engines to be built by General Motors Corporation.

The Vice-President of the Canadian Pacific said that exhaustive studies of their requirements in this operation had been made and by adopting diesel power the C.P.R. expected to obtain economies both in the initial cost of replacement and in actual operation. The change to diesels, it was stated, was hastened by the necessity of replacing or rebuilding 41 steam locomotives.

Embargo on Newfoundland Traffic

The Atlantic region of the Canadian National Railways announced on October 11 an embargo on all carload and less-than-carload freight traffic, including livestock and perishables, for Newfoundland shipped through North Sydney, Nova Scotia. The embargo, also affecting shipments to Labrador, was placed because of the railway strike in Newfoundland which had brought traffic to a standstill.

Publications Received

Scientific Instrument Handbook. London: Scientific Instrument Manufacturers' Association of Great Britain Limited, 26, Russell Square, W.C.1. 8½ in. × 5½ in. 219 pages. Price 10s. 6d. post free.—The main feature of the 1947 edition of this handbook, which is nearly double the size of the previous edition, consists of an alphabetical index with about 2,000 entries giving in outline the products made by member firms. This is supplemented by a further list of the same firms with their products. In this way it is possible to find out in a few moments the names and addresses of the makers of any type of scientific instrument and the products of any particular firm. The handbook contains, also, much useful information concerning the activities of S.I.M.A., including its organisation by sections, followed by illustrated reviews of the many activities of the British scientific instrument industry.

Railways in Australia and A.R.L.H.S. Bulletin. The Magazine about Australian Trains. Vol. 1. No. 1. Victoria. Australia: Traction Publications, 29, Seymour Grove, Brighton Beach. S.5 (in conjunction with the Australian Railway & Locomotive Historical Society). 10 in. × 8 in. 20 pp. Illustrated. Price 1s.—That railway lore flourishes in many countries outside the British Isles is well known and it is always especially pleasing to see evidence of lively enthusiasm in the British

Shipping officials at Halifax stated that the Newfoundland railway strike had tended to increase shipments through Halifax destined for St. John's, Newfoundland, but they were not accepting cargo for other inland points. Increased shipments through Montreal and Halifax for St. John's would more than offset the loss of trade to other Newfoundland ports. Hundreds of carloads of potatoes ordered by rail for Newfoundland had been held up by the strike.

AUSTRIA

Railway Town Planning at Bregenz

The main line from Lindau, Bavaria, to Austria and Switzerland cuts the town of Bregenz on the Lake of Constance, into two parts. The extensive railway installations, occupying valuable sites near the lake, are a serious obstacle to the organic growth of the town, which is being replanned to double its present population of 25,000. An Austrian architect, Dr. Kurt Klaudy, has prepared a plan for the re-planning of the railway and the town.

The main line is to be moved back from the lake to a new alignment, just over 9 miles long, slightly shorter than the present route. Less than half a mile will be in tunnel, and another section of just under one mile will be in cut-and-cover. The maximum gradient will be 1 in 150, and the minimum curve radius about 27 chains, in the vicinity of the station.

The goods yard is to be removed entirely from the central area and rebuilt beyond the river which joins the lake just outside the town. Instead of the existing passenger station, two stations are to be provided. One, near the harbour, will afford convenient connections with the steamer services and the mountain railway in the Pfänder. The other will be in the centre of the town, on a terrace where transverse roads cannot be made,

so that the railway will not constitute an additional hindrance. At this new central station, where the local bus and coach routes will terminate, the tracks will lie about 23 ft. above the level of the station forecourt, the subways giving access to the platforms at booking office level, and the main axis of the station building will be at rectangles to the line.

It is envisaged to double the remaining single-track sectors of the main line in the Bregenz area, and extend the electrification, which now ends at Bregenz, at least as far as Lochau on the Bavarian frontier, preferably to Lindau. The land freed by the removal of the present railway is to be used for road improvement, and the extensive and valuable area occupied by the present main passenger and goods station developed for commercial purposes. It is expected that the revenue from this development will bring in the greater part of the money to be spent on the railway works, and it is therefore claimed that the plan could be placed on a sound commercial basis.

SWEDEN

Improved Connections with the Continent

Improved connections with the Continent will be one of the features of the new timetable of the Swedish State Railways, which comes into force in May next year, and is based on the decisions of the recent European Railway Conference in Krakow. The Scandinavia—Switzerland express will cover the distance from Stockholm to Basle in 3½ hr. under the present time, permitting direct express connection also with the Basle—Rome Express. Connections with Belgium and France also will be improved, and the total travelling time on the "Nord Express" from Paris to Stockholm will be reduced by 2 hr., and special new trains will be run on certain weekdays during the summer.

Commonwealth. The first number of this magazine for Australian railway devotees, therefore, is an event of considerable note and more so, in view of the fact that the publishers have also set themselves the objective of maintaining a level of interest for the professional railwayman. For some time, the Australian Railway & Locomotive Historical Society has produced its *Bulletin* and, after discussions with the publishers of *Railways in Australia*, it was decided to combine the two publications, for although enthusiasm was not lacking, the field was limited.

Canadian Pacific Condensed Railway Timetable. Summer 1948. Obtainable from Canadian Pacific Railway. 62, Trafalgar Square, W.C.2. 8½ in. × 6 in. 15 pp. No price stated.—Details of the principal through services operated by the C.P.R. are contained in this condensed timetable for passengers arriving in Canada, by Atlantic steamship; editorial reference to the booklet is made elsewhere in this issue.

South Wales Ports. British Transport Commission. Cardiff: Office of the Chief Docks Manager. 9½ in. × 7½ in. 170 pp. Fully illustrated. Issued gratis.—This useful and informative handbook, which appeared annually before the late war under the title *G.W.R. Docks*, has now been published for the first time since 1939, this time by the Docks & Inland Waterways Executive of the British Transport Commission. It contains many

important facts concerning the South Wales ports, which include Cardiff, Swansea, Newport, Barry, Port Talbot, and Penarth. There are many excellent photographs of scenes at the various docks and the text contains a brief historical account of each port and a description of the most modern developments in cargo handling. The volume has more durable binding than was customarily provided before the war and, by the omission of data subject to change, it is intended to be of current value for a period of several years.

Power Generation Equipment.—The General Electric Co. Ltd. of England has published an illustrated 31-page brochure, finely printed on art paper, presenting a pictorial account of some of its recent products in the field of generation equipment. Among the illustrations is one of the turbine room at Meaford Power Station, Staffordshire, the first post-war power station to be brought into service, for which the General Electric Company supplied the whole of the power equipment. There are also photographs of a London Transport mercury-arc rectifier substation equipped by G.E.C.; of signals and a direction route indicator at Wigan, London Midland Region, installed by the Siemens & General Electric Railway Signal Co. Ltd., an associated company of the General Electric Company; and of an all-electric power interlocking frame and train describer equipment in service at Waverley East, Scottish Region.

A Coal-Burning Gas Turbine Locomotive Design

Principal details of the open-cycle layout, using electric drive, which is now under construction in America

A STUDY of the performance of the pioneer Swiss-built gas turbine locomotive has been made in America by the Allis-Chalmers Manufacturing Company, in conjunction with the Locomotive Development Committee of Bituminous Coals Research, Incorporated. As a result, these two organisations jointly have designed a larger unit, to use coal as fuel; and construction of the actual machine now has begun.

The desiderata listed by the makers in connection with this design are:—

- (1) Satisfactory operation on low-cost fuel,
- (2) High availability,
- (3) Axleloads to be within desired limits, without involving complicated bogie designs,
- (4) Adaptability to quantity production,
- (5) High efficiency,
- (6) Low maintenance costs resulting from long life of parts, low replacement costs, and accessibility for repairs,
- (7) Simplicity of control, and
- (8) Minimum need for water—preferably none.

Thermodynamic considerations, together with the physical properties of the

temperature; or varying temperature and varying speed. The first condition gives the best thermal efficiency for all loads from one-quarter to full load and the second makes it necessary, at light loads, to keep as near the design temperature as possible, in order to obtain the highest efficiency. By regulating both speed and temperature, however—the third condition—the best operating results are secured.

The chief components of the gas turbine are: an axial-flow compressor; a reaction turbine; a direct-current generator with two shafts; reduction gears (a pinion between two low-speed gears, which drive the two main generator shafts); a regenerator; a combustor and fly-ash separator. Care has been taken in the mounting of these components to ensure satisfactory operation, despite any distortions which might occur in the underframe.

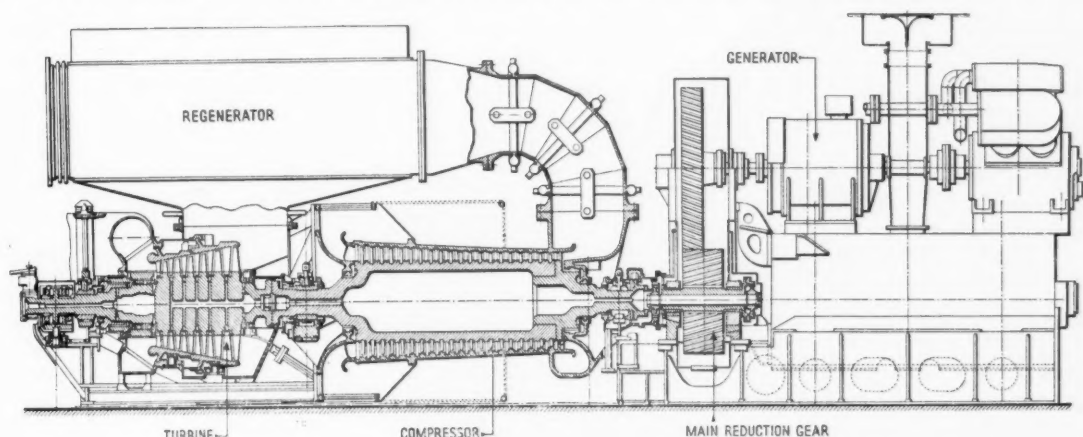
The six-stage reaction turbine is designed to deliver 12,243 h.p. to the turbine compressor coupling at 5,700 r.p.m. The spindle body, of fabricated construction, consists of six disc forgings of equal diameter, machined and welded together to form the blade-carrying portion. The material is known as Auegheny Ludlam

gases from escaping between the stationary and moving parts of the high-pressure end of the cylinder. Air from the compressor discharge, which (due to losses in regenerator and fly-ash separator) is at a higher pressure than the gases at the first turbine stage, is admitted to a belt around the gland, and helps to cool this part of the spindle (which is in the high-temperature region) and to prolong its life. A further portion of the cool compressor discharge is led along the spindle surface to the suction of a small exhaust fan.

The axial-flow compressor is between the turbine and the main reduction gear, thus allowing enough space for the regenerator to be placed above. The axial thrust on the compressor rotor is opposed by the axial thrust on the turbine spindle.

Speed is controlled by a fly-ball governor driven from the main speed-reduction gear; it operates by controlling the rate of fuel flow to the combustors on the low-speed range, and the excitation when in the constant-temperature phase. An overspeed governor is fitted to stop the flow of fuel to the combustors.

Through the regenerator, located above the turbine, high-pressure air is conveyed in straight tubes, while the hot exhaust-gases pass over the tubes and are vented to atmosphere through the cab roof. A steel expansion joint in the regenerator shell allows for differences in length between it and the tubes within it.



General arrangement of Allis-Chalmers gas turbine power plant. The overall length is 27 ft. 7 in.

materials of construction, suggested an initial gas temperature of 1,300° F. at the turbine inlet, and a pressure ratio of 4.8/1. The ambient air conditions assumed were 14.7 lb. per sq. in. and 70° F.

As the fuel is to be coal, a fly-ash separator has to be accommodated between the combustor and the turbine inlet. At the rated load, the pressure loss through the separator is estimated to be 2.8 lb. per sq. in. A regenerator is included in the cycle, and further pressure losses of 1.2 and 0.42 lb. per sq. in. through the air and the gas sides respectively have been allowed for. On this basis, the turbine will deliver 4,120 h.p. to the reduction-gear pinion at 24 per cent. shaft thermal efficiency, when the combustion efficiency is taken to be 96 per cent. The plant will operate as well on fuel oil as on coal; it is expected that the former will be used for short intervals, as when starting.

Operation of the unit may be arranged to achieve constant temperature with varying speed; or constant speed with varying

5,590, and has the following percentage composition: cobalt, 20; chromium, 20; nickel, 20; tungsten, 4; columbium, 4; molybdenum, 4. This material, though satisfactory, is expensive; and recent experience with less costly alloys is promising. Supersonic inspection of the material before and after forging, has helped in determining the quality of the spindle parts; and radiographic inspection of the disc welds also will be carried out.

At the high-pressure end, the working pressure in the cylinder is about 70 lb. per sq. in. It is supported on the cradle at the horizontal joint, and no shock forces can be received from other parts.

All blades are of S-590 alloy, the first four rows being precision-cast and the last two machined to shape. The tip speeds of the longest and shortest are, respectively, 895 and 675 ft. per min. No bracing wires are required, and no shrouds are used. Blade tips are sharpened to reduce the effects of an accidental blade-rub.

A high-pressure gland prevents the hot

To minimise weight, a two-shaft generator layout was chosen, with two armatures on each shaft. This gives a symmetrical arrangement with regard to the longitudinal centre-line of turbine, gears, and cab. With this layout, a generator shaft speed of 1,350 r.p.m. was selected; later investigations showed that weight could be saved by going to 2,000 r.p.m. and this higher speed has now been decided on. This, therefore, is the speed to which the drive is reduced from the high-speed pinion when the turbine rotates at its rated speed of 5,700 r.p.m.

Auxiliaries mounted on top of the generator and drives, also at 2,000 r.p.m., from the main gear, are two 175 kW. a.c. generators, one 30 kW. exciter, and one 40 kW. d.c. generator. Starting is effected by two of the four main generators acting as motors to bring the unit up to starting speed (about 1,600 r.p.m.). Power for this purpose is to be derived either from the battery, or from a 200 h.p. diesel-driven generator.

Rheostatic and Regenerative Braking—4*

Principles of the metadyne for
motor control and regeneration

By B. J. Prigmore, M.A., A.M.I.E.E.

THE problem of obtaining regeneration on suburban trains is complicated by the fact that, to be of any real use, regeneration must be available down to a very low speed. The only control equipment in regular use on suburban trains which permits of this is the metadyne, which not only gives regeneration down to almost zero speed, but also enables "notchless" non-rheostatic acceleration to be obtained.

It is the double saving of energy so given, added to the large reduction in brake block consumption, which, when stops are sufficiently frequent, ultimately makes the metadyne an economic machine. Its running losses, extra weight, cost, and maintenance requirements are justified only by savings consequent on its frequent use.

The metadyne is best viewed, in the opinion of the author, as a single-armature, armature-excited, motor-generator. A d.c. armature is arranged within a

equal to V . But as V is the constant applied voltage, so I_2 will be closely constant. If I_2 decreases, E_1 decreases, but V remaining constant, I_1 increases, so E_2 will increase, so I_2 will increase. That is, a tendency for I_2 to decrease results in a tendency for it to be made to increase, so it remains constant; this it does whatever the load, even if the load be a generator, as will be seen by step-by-step consideration of cause and effect.

Function of Pilot Motor

By the use of variator and regulator field windings on the y and x axes of the stator, to modify ϕ_2 and ϕ_1 , the output current may be controlled and equality between power output and input obtained so that the pilot motor has only to supply the losses.

In this form the metadyne is used on motorcoach trains to give constant-current

The equipment is cut off at low speed, as the train would move in the reverse direction if I_2 were to flow any longer. To cause I_2 to flow, a metadyne current I_m is required; the net regenerated line current, I_L , is the difference between I_2 and I_m .

In practice, for all but low retardations, the air brakes are applied to the trailing axles whilst the motored axles are braked by regeneration. Further retardation, as also final stopping and holding, is obtained by air brake application to all the wheels.

Voltage and current relays and air valves in the control circuits enable the sequence of operations to be performed automatically on movement of the brake controller by the train driver, arranging also for air brake application on regeneration failure, and for transfer of the line connections to a resistance on the train should over-voltage indicate that there is insufficient power demand from the track for regeneration to be feasible; rheostatic braking is thus obtained when the line is unreceptive of regenerated power.

Only by the addition of these refinements is such braking made safe for in-

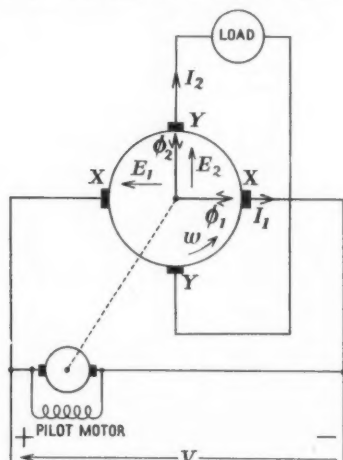


Fig. 8—The simple metadyne

stator (as shown in Fig. 8), and current I_1 passed through it between brushes xx . The currents in the armature conductors will then produce a magnetic field flux, ϕ_1 , as shown. A pilot motor rotates the armature in this field; the armature conductors cut the field and produce an e.m.f., E_2 , which is tapped by brushes at yy .

These secondary brushes are connected to the load, hence a current I_2 , caused by E_2 , flows through the load. But I_2 itself produces a magnetic field flux ϕ_2 , and due to the rotation of the armature in ϕ_2 , an e.m.f. E_1 is produced between the xx brushes, which e.m.f. opposes the flow of the current I_1 .

Now I_1 is caused to flow by the application of the constant voltage V to the brushes xx , and E_1 must be closely equal to V , otherwise I_1 will be very large; hence, for a constant speed of rotation of the armature, I_2 , which causes (via ϕ_2) E_1 , must be such as to make E_1 closely

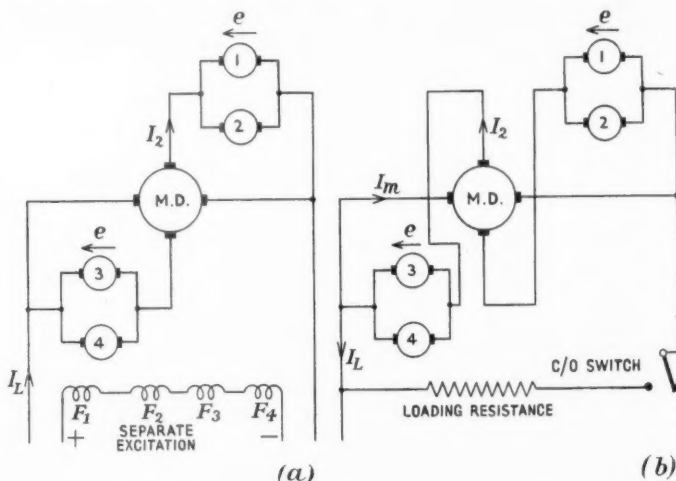


Fig. 9—The "eight" connection: (a) motoring, (b) braking

acceleration. The power circuit known as the "eight" connection is used, the pairs of separately-excited traction motors being in series across the line, with the metadyne armature between them, as in Fig. 9a. On starting, the metadyne permits constant current I_2 to flow through the motors; these accelerate and generate a back e.m.f., e , which, opposing the current I_2 , results in mechanical power being generated by the motors.

Regeneration

For regeneration, the secondary connections only are reversed, as shown in Fig. 9b. Current I_2 flows in the same direction through the metadyne, and remains constant, but it flows the reverse way through the motors, hence flowing with the motor e.m.f. e , which is being generated by continued rotation of the motor armatures in the separately excited fields. Current I_2 is thus taking power from the motors, hence these are now generators and giving a retarding tractive effort to the train.

corporation on suburban equipments; the driver of a metadyne-controlled train, as operated by London Transport on the City to Uxbridge and City to Hamersmith via Paddington services, is sure that there will be braking (even if metadyne regeneration proves inoperative) on movement of the brake controller.

(To be continued)

CANAL TRANSFERS.—The following is a list of the former railway canals which have now been transferred to the Docks & Inland Waterways Executive. They were all previously under the control of the former L.M.S.R. and were transferred to the D. & I.W.E. on the dates shown:—

Shropshire Union Canal	...	July 25
Trent & Mersey Canal	...	
Asby de la Zouch	...	
Cromford	...	
Huddersfield	...	August 15
Lancaster	...	
Manchester, Bolton & Bury	...	
Saint Helens	...	

* Previous parts of this article appeared in our April 23, June 18, and September 10 issues

Electric Traction Developments in Switzerland

Some of the equipment developed and manufactured by Brown Boveri & Company during the past two years



Motor coach for rack and adhesion, Aigle-Leysin Railway

THE experience gained by the Bernese-Lötschberg-Simplon Railway with the two Bo-Bo locomotives, series 251, described and illustrated in *The Railway Gazette* of August 16, 1946, has been excellent. In particular, wear on the wheel flanges has proved to be insignificant, despite the absence of pony axles. The favourable results induced the B.L.S.R. to order two more locomotives of similar design from Brown Boveri & Company in conjunction with the Swiss Locomotive & Machine Works, Winterthur.

The Belgian National Railways have ordered three Bo-Bo locomotives of a similar type for 3,000 V. d.c. and a maximum running speed of 125 km. per hr. The electrical part is being supplied by Brown Boveri & Company and the mechanical part by S.A. des Forges, Usines et Fonderies, Haine St. Pierre, Belgium. Disc drives are being used as in the Lötschberg locomotives. These machines will have a one hr. rating of 2,124 kW. at a running speed of 51 km. per hr. They are of about 81 tons weight and are equipped for multiple unit control.

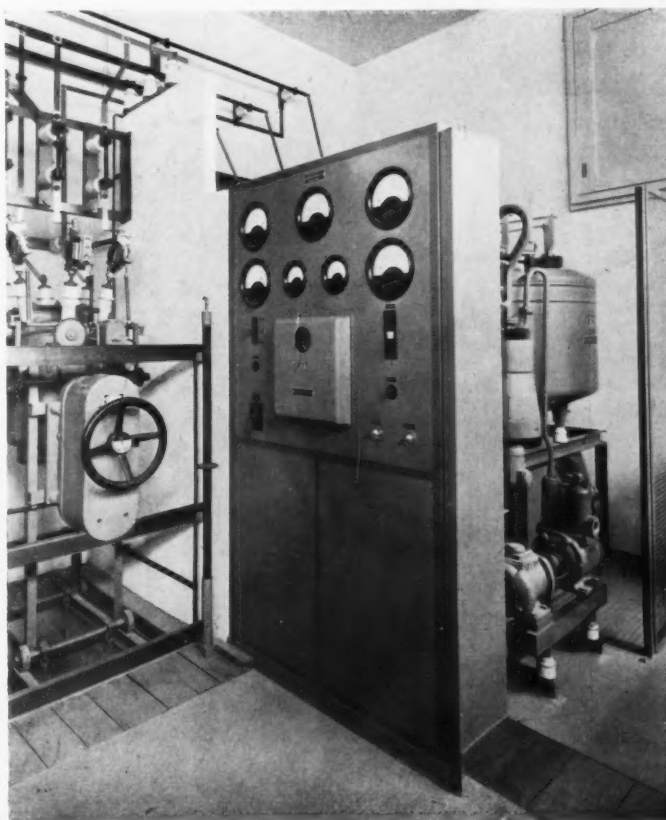
The Bo-Bo express locomotives of the Swiss Federal Railways, series Re 4/4, have been described already in *The Railway Gazette* of November 8, 1946. The three leading Swiss electrical firms shared the orders for the electrical equipment, and the Swiss Locomotive & Machine Works supplied the mechanical part. Motor coaches have been delivered for the Bulle-Romont line of the Chemins de fer Fribourgeois, which was electrified in 1946 on the 15,000-volt 16½ cycles system. The motor coaches have a one hr. rating of 1,000 h.p., and are equipped with the new type of bogie developed from the Simplex bogies of the Zurich City tramcars, illustrated in *The Railway Gazette* of September 13, 1946, and Brown Boveri spring drive. Further features of the electrical equipment are a transformer of the latest design with radially laminated core, air-blast type main circuit breakers mounted on the roof, and regenerative

braking on the Brown Boveri principle. Electrification of the United Hüttwil Railways also was completed in 1946, and the first of seven motor coaches, with a one

hr. rating of 1,120 h.p. at 60 km. per hr. and with spring drive and roof-mounted air-blast circuit breakers, was supplied.

New motor coaches for combined rack and adhesion operation have been supplied to the Aigle-Leysin Railway, and have effected a considerable reduction in travelling time. Also in this field of traction, the Bernese Oberland Railways have ordered new motor coaches which are required to have a maximum running speed of 21.5 km. per hr. on the rack and 70 km. per hr. on adhesion sections. To obtain stable operation without providing separate adhesion and rack motors, motors with two commutators have been provided for the first time. These permit running on the adhesion tracks at 1,500 V. terminal voltage with all four motors in parallel. The motors are arranged in series-parallel, however, when running on rack sections and each develops 157 kW.

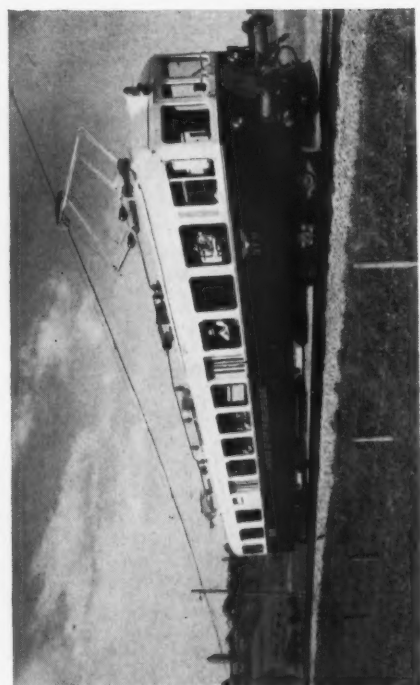
Since the end of the war there has been a considerable demand for mercury arc mutators for railway substations. A new air-cooled type with vacuum pump has been developed for use on main-line railways. Orders for this type have been placed by both the Dutch and Italian State Railways. In Switzerland some new railway substations have been put into service recently on the Chur-Arosa section of the Rhaetian Railways. The plant at the Lüen substation is equipped with two units of 800 and 400 kW. respectively. The 800 kW. set operates with 2,000 V. on the contact wire, and the other acts as d.c.-a.c. converter and returns the surplus energy generated by descending trains to the three-phase supply system.



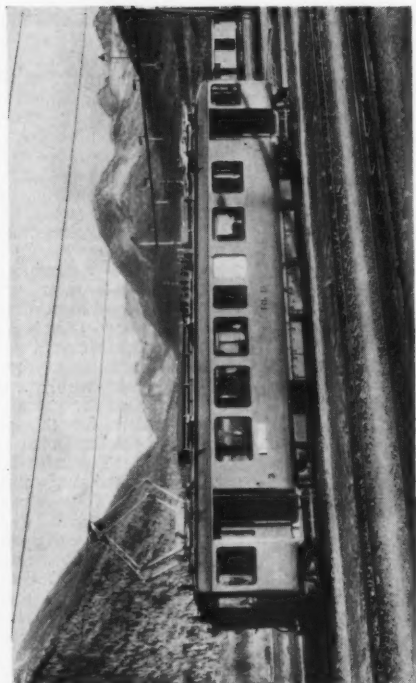
Lüen substation, Rhaetian Railways

Electric Traction Developments in Switzerland

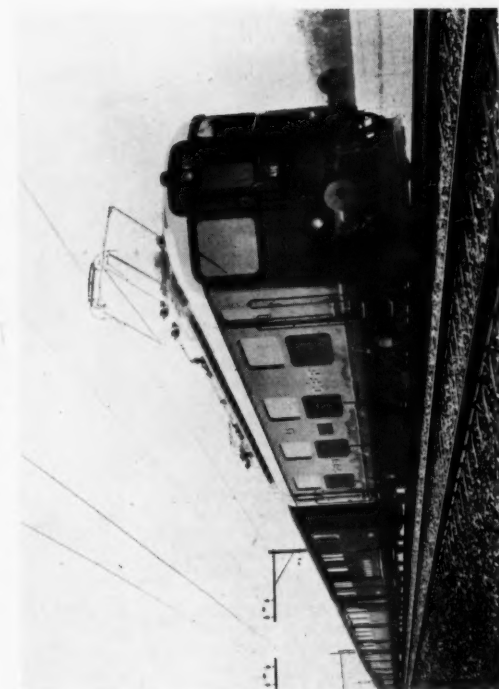
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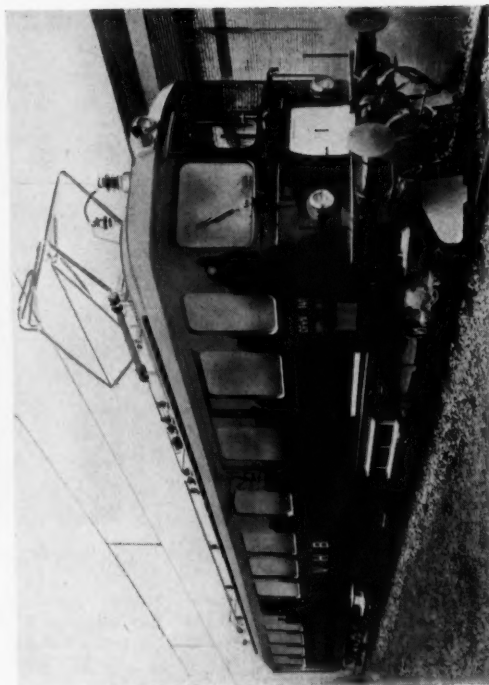
Motor coach, Chemins de fer Fribourgeois



B Ce 4/4 motor coach, Rhaetian Railways



Re 4/4 locomotive, Swiss Federal Railways



Motor coach, United Huttwil Railways

The New Loughton Station

The exchange point between electric and steam trains

THE new station at Loughton, built for the extension of Central Line trains, had to wait for 8½ years to be reached by electric trains, by reason of the unavoidable delays during the recent war. In connection with the 1935-40 New Works Scheme, it was decided to rebuild Loughton Station, L.N.E.R., on a new site, because additional space could not be obtained in the region of the old station. The new station is quite close to the one that it superseded, and was nearly finished when war broke out; it was opened on

and Easton & Robertson. Two island platforms built on an embankment are reached by stairs from a passage way underneath. The platforms are roofed over by centrally-supported awnings in reinforced concrete. The stiffening webs are on the top surface out of sight, so that the visible under surface is perfectly smooth and clean. Owing to the use of fine sections the roof structure is very light, and supporting columns are unusually few in number. Circular glass lights are let into the roof to increase

the forecourt. It is a steel-framed structure surfaced outside with rebated bricks to give a horizontal line effect. These bricks are a pale golden brown in colour. The semi-circular front and back windows are frameless, being constructed of glass bricks united by concrete. The edges are grooved to allow of the use of steel rod reinforcement between rows of bricks both vertically and horizontally. The barrel ceiling is temporarily finished in plastering coated with sandstone paint. When conditions permit, it will be covered with a semi-acoustic tile for deadening sounds. The walls, at present finished in sandstone paint, are to be covered eventually with putty coloured tiles. The floor is of 12 in. by 12 in. Marmette Prestile paving with



Eastern Region steam train and Central Line electric train at Loughton Station, the present interchange point

April 18, 1940. Among the additional facilities provided, one of the most important is the forecourt which serves as a turning place for cars and buses.

This station was planned to the requirements of the L.N.E.R., and it is a departure from the styles sponsored by London Transport. The design was prepared by Mr. J. Murray Easton, of Stanley Hall,

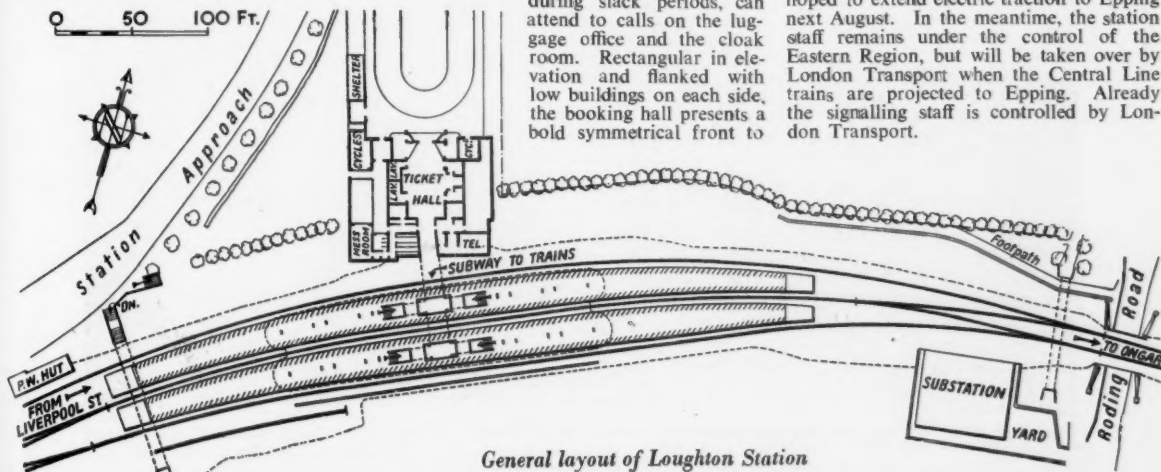
the amount of daylight reaching the platform when a train is standing by.

The booking hall stands beside the embankment and gives access to the subway leading to the platforms. The entrance is immediately opposite this subway, and the ticket office is to one side in accordance with common main-line practice. With this arrangement the ticket clerk,

during slack periods, can attend to calls on the luggage office and the cloak room. Rectangular in elevation and flanked with low buildings on each side, the booking hall presents a bold symmetrical front to

½ in. wide joints pointed in black cement and finished with carborundum. Lighting arrangements consist of wall brackets just below the band-course, with two provided on each side and two at each end.

At present, Loughton provides the interchange point between Central Line electric trains and Eastern Region steam trains working to Epping and Ongar, but it is hoped to extend electric traction to Epping next August. In the meantime, the station staff remains under the control of the Eastern Region, but will be taken over by London Transport when the Central Line trains are projected to Epping. Already the signalling staff is controlled by London Transport.



General layout of Loughton Station

The New Loughton Station

(See article on page 639)



The new station at Loughton, built in connection with the extension of Central Line trains. This is the present terminus of electric traction. The station was opened on April 18, 1940



Platform view of Loughton Station showing centrally-supported awning in reinforced concrete on one of the two island platforms

Improved Lighting at Eastern Region Stations

New fittings accepting either filament lamps or fluorescent tubes, for stations on the Liverpool Street—Shenfield line

STATIONS on British Railways, Eastern Region, line from Liverpool Street to Shenfield, which is now in process of electrification, are being provided with new types of lighting fittings that give considerably improved illumination. The new fittings have been evolved by the Electrical Engineer's Department and particularly close attention has been given to both good light distribution and to ease of cleaning, transport, storage, replacement of glazings (if broken in use) and maintenance of electrical parts.

They are of simple construction and have been designed to give both upward and downward lighting, in the correct proportion, as well as illuminating the station name, which is easily readable by day and

night. Each fitting accepts either two 100-watt tungsten filament lamps, or two 2-ft. 40-watt fluorescent tubes with control gear. Normally, the fittings are mounted 8 ft. above platform level and spaced 30 ft. apart.

Each fitting consists of an inverted trough-shaped bridge, arranged for overhead suspension, and a pair of inverted U-shaped end-plates attached to the ends of the bridge, to carry side and end translucent panels. The bridge and end-plates are made of aluminium alloy and the translucent panels of Perspex (acrylit resin sheet), all of which have been designed to facilitate quick assembly on the site. The panels are made at the Willesden factory of the Triplex Safety Glass Co.

Ltd., where the station names are stencilled on to the Perspex by a special process.

The framing of the fittings has been reduced to the minimum necessary to hold the Perspex panels in position and there is no metal at the lower edges of the panels, an arrangement which not only facilitates cleaning, but avoids the accumulation of dirt.

The whole of the components require little space for storage and considerably less than that needed for built-up fittings. Transport to the site also is much easier, and the components are less vulnerable to damage *en route*.

A complete specification, No. 7545, entitled "Improvements in and relating to lighting arrangements," has been filed at the Patent Office in respect of these fittings, which are designed for installation under cover. For the lighting of platforms outside the covered portions, translucent globes on concrete columns are being provided.



Eastern Region electric light fittings, Stratford : left, for tungsten filament lamps ; right, for fluorescent tubes

Shenfield Electrification, Eastern Region



Erection of an 87-ft. span gantry to carry overhead traction equipment and colour-light signals. British Insulated Callender's Cables Limited is supplying and installing the overhead equipment, the feeder cables between sub-stations, and the track equipment and track bonding, on the Liverpool Street to Shenfield main-line electrification, Eastern Region. This work should be completed early next year; it involves a total length of 110 track-miles. The working pressure is to be 1,500 volts d.c.

The Settle & Carlisle Line

(See editorial article in November 19 issue)



Up goods train leaving Rise Hill hauled by standard Class "4" 0-6-0 locomotive



Down "Thames-Forth Express" near Dent, hauled by Class "5" 4-6-0 locomotive No. 5081

Phot[93]

[W. Hubert Foster

RAILWAY NEWS SECTION

PERSONAL

Mr. G. Leedam, Secretary & Manager of the Cheshire Lines Committee and Cheshire Lines Section, British Railways, since 1936, is retiring next February, on reaching the age of 60.

Captain John Dudley Reed, Marine Superintendent, Western Region, British Railways, who, as recorded in our November 26 issue, has been appointed Assistant Chief Officer (Marine), Headquarters, Railway Executive, commenced his sea career as an apprentice in the *Windsor Hall* of the Cardiff Hall Line in 1914. He served throughout the first world war, in the early part on board a store ship

the next year he became Junior Assistant to the Running Superintendent at Crewe, in which capacity he remained until 1916, when he was transferred to Carlisle to take charge of the steam shed and C.M.E. shops there, together with the district from Oxenholme and Workington to Carlisle. In 1919 he returned to headquarters at Crewe, and in 1920 he took up the position of Superintendent-in-Charge of the whole of the sheds in the Birmingham area. Later in the same year Mr. Kinsman returned to the headquarters staff at Crewe as Assistant (Staff) to the Superintendent of Motive Power. In 1927 he was transferred to Derby as Assistant (Staff & Organisation), Motive Power Section, Chief General Superintendent's Depart-

ment of Edinburgh. Colonel Davies was at one time lecturer and examiner in the Faculty of Laws, London University; he was commissioned in the Royal Welch Fusiliers in 1940, and later became Assistant Judge Advocate General; and was Recorder of Merthyr Tydfil from 1942 to 1944, when he was appointed Recorder of Swansea.

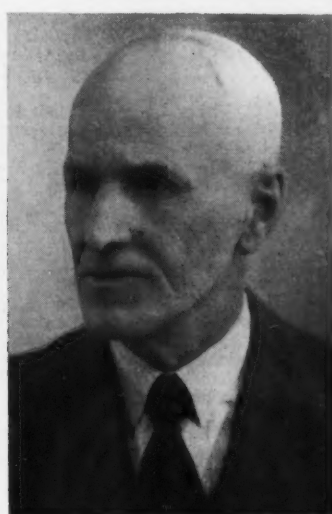
Mr. C. Holt, senior Assistant General Manager (Administration), Thos. Cook & Son Ltd., has been appointed Deputy General Manager.

Mr. C. R. Campbell, Assistant Divisional Operating Manager (Motive Power), Crewe, London Midland Region,



Captain J. D. Reed

Appointed Assistant Chief Officer (Marine) at the headquarters of the Railway Executive



Mr. O. E. Kinsman

Appointed Divisional Motive Power Superintendent (Midland Division), Derby, London Midland Region, British Railways



Mr. C. R. Campbell

Appointed Divisional Motive Power Superintendent (Western Division), Crewe, London Midland Region, British Railways

attached to the South Atlantic fleet, and later in a military transport attached to the Balkan forces. In 1924 he was given command of the *Wynburn*, remaining in command in the Merchant Navy until 1930. In that year he relinquished command of ocean-going ships to sit for the Board of Trade nautical surveyors examination, passing fifth in the United Kingdom. Later he served for a short period in Great Western Railway cross-channel vessels, and he was given his first shore appointment in the Chief Docks Manager's Department of the G.W.R. in 1933, serving at Swansea and Newport. In 1935 Captain Reed was promoted and transferred to the Marine Section (Chief Docks Manager's Office) as Marine Assistant in charge of the Fishguard-Eire services and as Harbourmaster at Fishguard; and in 1945 he became Marine Superintendent.

Mr. O. E. Kinsman, Assistant Divisional Operating Manager, Derby, London Midland Region, British Railways, who, as recorded in our November 12 issue, has been appointed Divisional Motive Power Superintendent (Midland Division), Derby, entered the service of the L.N.W.R. at Crewe Works in 1905. After serving four and a half years in the shops, then two years in the drawing office, he was appointed Assistant to the Motive Power Superintendent at Lonsight in 1911. In

1932 he was appointed Assistant Divisional Superintendent of Motive Power, Derby, and in 1935 he became Assistant Divisional Superintendent of Operation there, which position was redesignated as Assistant Divisional Operating Manager in 1946.

TRANSPORT CONSULTATIVE COMMITTEES:
CHAIRMEN APPOINTED

The Minister of Transport has appointed Major Egbert Cadbury, D.S.C., D.F.C., M.Inst.T., to be Chairman of the Central Transport Consultative Committee for Great Britain to be established under the Transport Act, 1947. He has also appointed Mr. Neil S. Beaton and Lt.-Colonel H. Edmund Davies, K.C., to be Chairmen of the Transport Users Consultative Committees for Scotland and Wales, respectively, and they will also be members of the Central Transport Consultative Committee, the full composition of which the Minister expects to announce shortly. Major Cadbury is a Managing Director of J. S. Fry & Sons, Ltd., and a Director of Lloyds Bank Limited. Mr. Beaton was President of the Scottish Trades Union Congress in 1919; from 1924 to 1946 served as a Director of the Scottish Co-operative Wholesale Society Limited (Chairman from 1932); and is a member of the North of Scotland Hydro-Electric Board, and a Councillor of the

British Railways, who, as recorded in our November 12 issue, has been appointed Divisional Motive Power Superintendent (Western Division), Crewe, was educated at Whitworth School and Derby Grammar School and subsequently took engineering courses at Derby Technical College and Nottingham University. He entered the service of the Midland Railway as a privileged apprentice in 1918, passed through the various shops and the drawing office, and was transferred to the Motive Power Department in 1923. After serving in various positions he became an Assistant in the Office of the Superintendent of Motive Power, L.M.S.R., in 1934. A year later he was appointed Assistant to Divisional Superintendent of Operation (Motive Power), Derby. In 1938 he was made District Locomotive Superintendent at Carlisle, and in 1941 took over the corresponding post at Newton Heath. Early this year he was appointed Assistant Divisional Operating Manager (Motive Power), Crewe.

A portrait and biography of Mr. A. H. Madden, hitherto Assistant Divisional Operating Manager, Manchester, London Midland Region, who was recently appointed Divisional Motive Power Superintendent (Central Division), Manchester, appeared in our issue of March 19 last.



Elliott] [d Fry

Mr. C. G. Reddington

Appointed District Engineer,
Ipswich, Eastern Region,
British Railways

Mr. C. G. Reddington, A.M.I.C.E., Assistant District Engineer, Stratford, Eastern Region, British Railways, who, as recorded in our October 29 issue, has been appointed District Engineer, Ipswich, joined the L.N.E.R. at Kings Cross in 1925, and in 1927 went to the Maintenance Office at Liverpool Street. In 1929 he joined the staff of the District Engineer, Kings Cross, where he was engaged on the remodelling of Kings Cross locomotive depot; and in 1935 he transferred to the Construction Office, and was concerned in schemes for the Great Eastern electrification. In 1937 he was appointed as an engineering graduate. During the early part of the war Mr. Reddington was employed on new works on the Great Eastern electrification scheme and also served at the temporary headquarters at Hitchin and Peterborough. In 1940 he was Acting Assistant District Engineer, Nottingham, and dealt with new loops on the Great Central Section, and other matters. In 1942 he became Senior Assistant in the District Engineer's Office, Hadley Wood, taking charge of the drawing office; and in 1943 he was appointed Assistant District Engineer, Stratford.

Mr. W. L. Henderson has been appointed Assistant Secretary to the Engineers' Guild.

Mr. R. E. Marks has been appointed Manager of the Government Railway & Overseas Department of the Vacuum Oil Co. Ltd. at Caxton House, Westminster.

The French Government has conferred the Legion of Honour on Sir William Halcrow and Mr. W. J. E. Binnie, Past-Presidents of the Institution of Civil Engineers.

Mr. Arthur H. Conebeare, European Secretary & Treasurer of Canadian National Railways and its associated companies, retired on November 26 after over 38 years' service, and was the recipient of a presentation from his colleagues. After a legal training, Mr. Conebeare joined the Canadian Northern Railway as Assistant Local Secretary in 1910. He was appointed Assistant European Secretary, Canadian National system, in 1921, and

became European Secretary & Treasurer in 1932. His experience covered financing in London during the railway building era of Canada, also the early operations of the Canadian Northern Steamships from Avonmouth to Canada.

Mr. Henry Mayo, Assistant Solicitor (General), Eastern Region, British Railways, has retired. Mr. E. P. Merritt has been appointed Assistant Solicitor (General & Conveyancing).

Brigadier-General Sir Godfrey Rhodes (at one time General Manager of the Kenya & Uganda Railways & Harbours) has relinquished his post as Chief Representative of the African Office of Sir Alexander Gibb & Partners to fill the new post of Chief Engineer & Special Commissioner for Works recently created by the Government of Kenya.

COLONIAL RAILWAY APPOINTMENTS

The Secretary of State for the Colonies has approved the following appointments:—

Mr. S. C. Fisher to be Assistant Electrical Engineer, Gold Coast Government Railway.

Mr. J. R. Gomez, Assistant Engineer, Trinidad Government Railways, to be Maintenance Engineer.

Mr. H. D. Jones, Assistant Accountant, Jamaica Government Railway, to be Accountant.

The Minister of Transport has set up a small working party to investigate the possibilities of increased mechanisation in United Kingdom ports, with special attention to the handling of timber imports. The party is composed as follows:—

Ministry of Transport: Mr. P. E. Millbourn (Chairman), Adviser on Shipping in Port to the Minister, Mr. C. S. C. Bridge (Secretary); Port Mechanical Engineer: Mr. C. H. Nicholson, Docks Machinery Engineer, Eastern & North Eastern Regions, British Railways; Port Traffic Manager: Mr. G. A. G. Ansell, Assistant Dock Superintendent, Surrey Commercial Docks, Port of London Authority; Port Employer: Mr. D. W. James, Scruttons Limited, Liverpool; Dock Worker: Mr. A. Bird, T.G.W.U., London; Representative, Shipowners: Captain J. S. Munro, Clan Line Steamers Limited.

Mr. Roger Duncalfe has been elected Chairman of the General Council of the British Standards Institution, in succession to the late Sir Clifford Paterson.

ROAD TRANSPORT EXECUTIVE

The Road Transport Executive has announced the following appointments:—

Headquarters

Mr. W. L. Morgan to be Deputy Chief Engineer.

Divisional Headquarters (Freight)

To be Divisional Traffic Officers:—

Eastern: Mr. J. H. Cleveley; South Eastern: Mr. R. J. Elmes; South Western: Mr. R. S. Trew.

To be Divisional Accountants:—
Eastern: Mr. J. H. Webster; Midland: Mr. B. F. Pocock; Western: Mr. W. W. Hubble; North Western: Mr. S. F. Cox; Scottish: Mr. E. J. Crook; North Eastern: Mr. A. B. Davies; South Western: Mr. L. J. Whittaker.

District Managers

Mr. J. W. Calvert, Peterborough; Mr. P. A. Collins, Midland Division; Mr. W. Latham, Midland Division; Mr. P. J. Lewis, Newport-Cardiff; Mr. H. Reed, Swansea; Mr. G. Smart, Bristol; Mr. W. Wisely, Aberdeen; Mr. C. N. Christensen, Manchester; Mr. George Warrington, Sheffield.

**Mr. E. P. Merritt**

Appointed Assistant Solicitor (General & Conveyancing), Eastern Region,
British Railways

Mr. E. P. Merritt, who, as recorded elsewhere on this page, has been appointed Assistant Solicitor (General & Conveyancing), Eastern Region, British Railways, served his articles with two distinguished railway solicitors, Sir Francis Dunnell and Mr. I. Buchanan Pritchard. He was admitted a solicitor in 1930 (Honours 3rd Class), and was employed first in the Chief Legal Adviser's Office at Kings Cross of the former London & North Eastern Railway, and later (1931-35) at York. He returned to Kings Cross in 1936, and remained there until entering military service in 1940. He returned in 1944 to the General Section of the Chief Legal Adviser's (now the Regional Solicitor's) Office at Kings Cross.

The following appointment was gazetted recently, under the heading of Regular Army:—Colonel (temporary Brigadier) L. Wansbrough-Jones, late Royal Engineers, to be temporary Major-General, October 19, 1948.

Mr. W. H. Glossop, Assistant to Principal & Chief Instructor, Derby School of Transport, who, as recorded in our November 12 issue, has been appointed Training & Education Officer, Railway Executive Headquarters, London, entered the office of the Secretary & Manager, Cockermouth, Keswick & Penrith Railway, as a clerk in 1914. In 1923 he was transferred to the Chief Goods Manager's Office, L.M.S.R., at Euston, where he held positions in the Rates, Personal & General, Commercial, Development and Research Sections. In 1936 he was made Assistant to the District Goods Manager, Bolton, and in January, 1938, Instructor at the School of Transport, Derby. During the recent war he became Assistant to the District Goods & Passenger Manager, Leicester, and later Assistant to the District Goods & Passenger Manager, Sheffield. In June, 1944, Mr. Glossop was made Assistant (Rates Tribunal), Chief Commercial Manager's Office, and in March, 1946, on the re-opening of the Derby School of Transport, he returned as Assistant to Principal. In December, 1947, he became Assistant to Principal & Chief Instructor, which position he now vacates.

MEMORIAL SERVICE FOR LORD ASHFIELD

A memorial service for Lord Ashfield, a Member of the British Transport Commission, and previously Chairman of the London Passenger Transport Board, who died on November 4, was held at St. Martin-in-the-Fields on November 26. The Reverend L. M. Charles-Edwards officiated. The Prime Minister and the Minister of Transport were represented, and the large congregation, in addition to family mourners, included:

Viscount Jowitt, Mr. Herbert Morrison, M.P., Mr. Harold Wilson, M.P.

British Transport Commission: Sir Cyril Hurcomb (Chairman), Lord Rusholme, Sir William Wood and Mr. J. Benstead (Members), Mr. J. H. Brebner (Chief Public Relations & Publicity Officer), Mr. Miles Beever (Chief Secretary & Legal Adviser), and Mr. J. L. Henderson (Public Relations Officer).

London Transport Executive: Lord Latham (Chairman), Mr. J. Cliff (Deputy Chairman), Sir Edward Hardy (Member), Mr. P. Croom-Johnson (Chief Engineer), and other officers and members of the staff.

Railway Executive: Sir Eustace Missenden (Chairman), Mr. V. M. Barrington-Ward (Member), and Chief Regional Officers: Mr. K. W. C. Grand (Western), Mr. John Elliot (Southern), Mr. G. L. Darbyshire (London Midland), and Mr. C. K. Bird (Eastern), who also represented Mr. C. P. Hopkins (North Eastern) and Mr. T. F. Cameron (Scottish). Imperial Chemical Industries: Lord McGowan (Chairman), Sir Frederick Bain and Mr. A. J. Quig (Deputy-Chairmen), Lord Glenconner, Sir Wallace Akers, Sir John Anderson, M.P., Sir Peter Bennett, M.P., Sir Andrew Duncan, M.P., and other Directors, with officials and members of the staff.

The Marquess of Linlithgow (Chairman, Midland Bank), Lord Hacking (Travel Association), Lord Brabazon of Tara, Lord Inman (Chairman, Hotels Executive), Lord Leathers, Sir Reginald Hill, Sir Ralph Wedgwood, Sir Lynden Macassey, Sir Alan Mount, Sir James Milne, Sir Frederick Handley Page, Sir Edward Peacock, Mr. J. A. Kay (Editor, *The Railway Gazette*), Mr. D. R. Lamb (Institute of Transport).

Commercial Organisation of Cheshire Lines

The London Midland Region announces that, under the regional organisation of British Railways, the separate organisation of the Cheshire Lines Section is discontinued after November 30, and from December 1, 1948, communications and inquiries formerly addressed to the Secretary & Manager, Mr. G. Leedam, should be sent, for the sections of Cheshire Lines shown, to the following officers, for freight-train traffic and passenger-train traffic, respectively:

Liverpool Central to Garston, inclusive, and Wavertree Branch; Birkenhead, Shore Road and East & West Float; Gateacre to Sefton inclusive and Huskisson Branch: Mr. D. S. Inman, District Goods Manager, Central Station, Liverpool; Mr. T. C. Byrom, District Passenger Manager, Lime Street Station, Liverpool.

Hunts Cross to Glazebrook inclusive; Southport to Lydiate inclusive; Plumley to Delamere inclusive and branches: Mr. J. Fallows, District Goods Manager, Arpley Station, Warrington; Mr. T. C. Byrom.

Irlam to Manchester Central inclusive; Chorlton-cum-Hardy branch; Cadishead to Godley inclusive; Altrincham to Knutsford inclusive: Mr. H. P. Aggleton, District Goods Manager, Hunts Bank, Manchester; Mr. R. C. Flowerdew, District Passenger Manager, Hunts Bank, Manchester. (Inquiries respecting freight-train matters affecting Manchester Central Station should be addressed to Mr. A. S. Railton, District Goods Manager, Eastern Region, Manchester).

Mouldsworth to Chester inclusive and Helsby branch: Mr. F. H. Fisher, District Traffic Supt., General Station, Chester.

Siamese Purchasing Commission

Reception by Railway Engineering Supply Industries Joint Committee

On Monday afternoon, November 29, the Railway Engineering Supply Industries Joint Committee gave a reception to the Siamese Government Mission at the Savoy Hotel. Mr. A. J. Boyd (Managing Director, Metropolitan-Cammell Carriage & Wagon Co. Ltd.), was the Chairman of the Reception Party. Those who accepted invitations were:—

Members of the Mission: Luang Cgaran Snidvongs (Leader), Under Secretary of State, Ministry of Communications; Luang Thavil, Acting Director-General, Department of Foreign Trade, Ministry of Commerce; Luang Vidura Vidhikol, Chief Mechanical Engineer, State Railways Department, Ministry of Communications; Luang Videt Yontrakich, Chief Civil Engineer, State Railways Department, Ministry of Communications; accompanied by Mr. B. J. Garnett, First Secretary (Commercial), British Embassy, Siam, and an official of the Central Office of Information.

Locomotive Manufacturers: Mr. W. D. Lorimer and Major-General G. S. Szlumper, North British Locomotive Co. Ltd.; Messrs. F. Theakston, Hunslet Engine Co. Ltd.; G. Collingwood, Vulcan Foundry Limited; I. A. Marriot and H. Davies, W. G. Bagnall Limited; M. A. Crane, Beyer, Peacock & Co. Ltd.; K. F. Pearson, Robert Stephenson & Hawthorn Limited; W. J. Wakley, Drewry Car Co. Ltd.; H. Andrew, D. Wickham & Co. Ltd. (railcars); W. G. Hornett, Sentinel (Shrewsbury) Limited; H. Sleightholme and E. T. N. Allnutt, Ruston & Hornsby, Limited; A. P. Good, Brush Electrical Engineering Co. Ltd.; C. Howe, John Fowler & Co. (Leeds) Ltd.; S. Potter, English Electric Co. Ltd.

Railway Carriage and Wagon Builders: Messrs. A. J. Boyd and L. B. Alexander, Metropolitan-Cammell Carriage & Wagon Co. Ltd.; Commander H. V. Gaud, Metropolitan Rail Cars (Carey Patents) Limited; Messrs. H. J. S. Moyses and C. L. Trask, Birmingham Railway Carriage & Wagon Co. Ltd.; A. E. Cook, Cravens Railway Carriage & Wagon Co. Ltd.; J. Hobbs, Hurst, Nelson & Co. Ltd.; Russell Bailey, Charles Roberts & Co. Ltd.

Railway Brakes and Signals: Messrs. F. L. Castle, Siemens & General Electric Railway Signal Co. Ltd.; J. Griffith-Hall and M. W. Shorter, Westinghouse Brake & Signal Co. Ltd.; B. W. Painter, Metropolitan-Vickers-GRS Limited; Colonel H. Gresham, Gresham & Craven Limited; Mr. Leigh Ollerenshaw, Railway Signal Co. Ltd.

Railway Tyres Wheels and Axles: Messrs. R. E. Mayhew, Taylor Bros. & Co. Ltd.; Edward Baker, John Baker & Bessemer Limited; E. B. Rees and H. A. A. Whyte, United Steel Cos. Ltd.; Major E. I. Scott and Mr. E. W. Greaves, English Steel Corporation Limited; Major C. D. Morrison and Mr. C. Pritchard, Blaenavon Co. Ltd.

Railway Springs: Messrs. Wm. Walker, Thos. Firth & John Brown Limited; J. B. Woodman, Geo. Turton, Platts & Co. Ltd.; E. F. Brown, Thos. Turton Limited.

Accessories for Locomotives, Carriages and Wagons: Messrs. F. A. G. Powell-Jones, A. F. Chilton and E. E. Chapman, J. Stone & Co. Ltd. (train lighting, axle boxes); R. D. Metcalfe and J. T. Metcalfe, Davies & Metcalfe Limited (injectors and ejectors); A. Gordon Wilson, Self-Changing Gear Co. Ltd.; J. B. Curry, A.B.C. Coupler & Engineering Co. Ltd. (buffers, regulators and pistons); Eric Robinson and E. Lawton, Superheater Co. Ltd.; A. W. Marshall and F. Shore, J. W. Roberts Limited (asbestos sheets, lagging, etc.).

Other Representatives: The Hon. R. G. Lytton and Mr. A. H. Bishop, Guest, Keen & Nettlefolds Limited; Messrs. I. L. Davies and W. G. Pinder-Wilson and Mrs. R. Monck, Board of Trade (Export Promotion Department); Colonel F. J. Biddulph, Ministry of Supply (Directorate of Royal Engineer Equipment); Messrs. F. J. Doggett, Ministry of Supply (Engineering Industries Division);

John Kay, *The Railway Gazette*; C. G. Hatherly, Messrs. Sandbergs; Major A. Beattie, Loxley Rice Co. Ltd.; Mr. A. R. Robertson and Miss M. Racine, Locomotive Manufacturers Association.

Mr. J. W. Vaughan, Director, Locomotive Manufacturers Association of Great Britain; Secretary, Railway Engineering Supply Industries Joint Committee.

British Railways: Inter-Regional Transfers

The Railway Executive issued an official announcement on November 30, stating that many railway routes, stations, and goods depots are involved in an extensive programme of inter-Regional adjustments which the Railway Executive is carrying out in order "to simplify supervision, to reduce administrative costs, and to avoid unnecessary duplication." The lines or stations are those which penetrate from one Region into boundaries of another, and in most cases the lines originated as competitive penetrations by one railway company into territory already served by another.

The full list of re-allocated lines and stations already approved is as follows:—

Carlisle to Silloth; from North Eastern Region to London Midland Region (on June 12).

Garsdale to Hawes; from London Midland Region to North Eastern Region.

Glazebrook to Wigan (Central) and St. Helens (Central); from Eastern Region to London Midland Region.

Bidston (near Birkenhead) to Chester and Wrexham; from Eastern Region to London Midland Region.

Former L.N.E.R. Stafford line, from Egginton Junction to Dove Junction (near Burton-on-Trent), and from Bromshall Junction (near Uttoxeter) to Stafford; from Eastern Region to London Midland Region.

Craven Arms to Swansea (Victoria) and branches; Swansea (St. Thomas) to Brynamman; Merthyr Tydfil to Abergavenny, and branches; Hereford (Moorfields) to Three Cocks Jc.; Rotherwas Jc. to Red Hill Jc.; Hereford; former joint stations including Abersychan and Talywain, Pontardulais, etc.; also Merthyr-Morlais Jc. line (formerly joint); from London Midland Region to Western Region.

London, Tilbury & Southend section of the former L.M.S.R. (Fenchurch Street to Shoeburyness, Barking to Tilbury, and branches); from London Midland Region to Eastern Region. (Note: London Midland Region retains the Tottenham & Hampstead Joint line as between Kentish Town and St. Ann's Road station inclusive; Southern Region takes over the Gravesend Landing Stages).

Newbury to Winchester (Cheeshill); from Western Region to Southern Region.

Penetrating stations and depots

Canal Engine Shed, Carlisle; from Scottish Region to London Midland Region.

Hawkins Lane Goods (Burton); Oldham (Clegg St.) Goods; Bidston Goods; Birkenhead (Dock Road and Duke St. Goods); from Eastern Region to London Midland Region.

Birkenhead (Morpeth Dock Goods); Liverpool (Challoner Street, James St. Office, Lightbody St., and Pier Head Depots); from Western Region to London Midland Region.

Spalding Goods Depot; from London Midland Region to Eastern Region.

Former joint stations and depots

Normanton, Tebay, and Penrith; allocated to London Midland Region.

Bristol (Temple Meads), Churchdown, Worcester (Shrub Hill), and Chelsea Basin; allocated to Western Region.

These transfers are now being implemented by the Chief Regional Officers concerned. Proposals are actively in hand for many similar transfers.

BRITISH RAILWAY MATERIAL FOR RUSSIA.

—In reply to a question in the House of Commons on November 29, Mr. A. G. Bottomley, Secretary for Overseas Trade, gave details of British exports to Russia in the twelve months ended September, 1948. They include 14,917 tons of railway and tramway construction material of all kinds to a total value of £253,000.

Ministry of Transport Accident Report

Near Lamington, Scottish Region, British Railways: March 7, 1948

Mr. J. L. M. Moore inquired into the accident which occurred at 10.44 p.m. on March 7, 1948, a short distance from Lamington Station, on the Scottish Region of British Railways. As the 9.25 p.m. passenger train, Glasgow to London, composed of 11 vehicles, totalling 360 tons (well within the 570 tons maximum for that section of line) drawn by 4-6-2, Class "7," streamlined express engine No. 6224, was approaching that station, there was a partial collapse of the crown of the copper firebox, overheated from shortage of water. The crown plate was forced over the heads of 21 riveted crown stays and it stripped the nuts from three others. There was no tearing of the plate, except in the immediate vicinity of the damaged stayholes, through which steam escaped and blew flames through the open fire doors, severely burning and scalding the driver and fireman. The former succumbed to his injuries shortly afterwards.

The train came to a stand 280 yd. in rear of the station, which is in an isolated part, with the nearest doctor 9 miles away. There was a certain amount of ambulance equipment on the train and at the station, and a driver trained in first-aid was soon available. Mr. Moore is satisfied that the injured men received every possible attention and were removed to hospital without undue delay.

The fireman managed to get to the signal box, arriving in a state of collapse, and the guard, walking forward to ascertain the cause of the stop, found the driver lying in the down line near the engine. He assisted him to a place of safety and not finding the fireman, went to the signal box. Meanwhile the fireman of a down goods train, stopped at the home signal because the up train had been an unusually long time in section, reached the box in carrying out Rule 55 and assisted to bring the driver to the station.

The guard went back to protect his train, remaining over 3 hr., when it was drawn forward with disabled engine attached. That engine was put in a siding and the train proceeded at 2.46 a.m., reaching Euston 4 hr. 25 min. late. This delay was largely due to the erroneous impression that the disabled engine could not be moved, but Mr. Moore does not dwell on this; the matter at once received official attention and there was no infringement of rules, except possibly in the delay in the protection of the train by the guard, in extenuating circumstances.

The engine left Crewe Works on November 22, 1947, after heavy service repair, tantamount to a general overhaul, except that the boiler was not removed from the frame. Since then it had run 16,050 miles. Repairs to the boiler, No. 10305, constructed in 1938, and fitted in June, 1946, did not, on this occasion, amount to more than removing 143 steel nuts, caulking certain joints and expanding a few large and small tubes. Periodical examination of engine and boiler were up to date. The circumstances of the case were so unusual that Mr. Moore was obliged to hear some 40 witnesses.

THE JOURNEY

The train left Glasgow Central on time and reached Carstairs at 10.17 p.m., three min. early. The driver immediately went to the shed to obtain a gauge glass. Asked if he wanted it fitted, he said he required it as a spare, but, if a fitter was handy,

he might examine the engine with a view to locating an escape of steam in either the firebox or smokebox. This had been noticed first on passing Uddingston, 8½ miles from Glasgow. The foreman and two fitters did so, as far as they could, and heard steam escaping. They were unable to trace its origin and neither enginemmen nor shed staff appear to have suspected the lead plugs, difficult to see from the footplate when the engine is in steam. There is little doubt, however, that one or both of them had fused by that time, but the driver seemed satisfied with the fitters'

the centre line and close to the tube plate, the bulge was 5 in. deep. The roof stays have nuts, except the three front and three back rows, which are riveted, for convenience in the event of the tube or back plate having to be renewed. Before the nuts were finally forced from the three stays they made deep hexagonal impressions on the plate, indicating its plastic condition as a result of overheating and leaving no doubt that the nuts were in position up to the accident. The lead in both plugs was completely melted.

The comparatively gradual escape of steam and the firehole doors being open, no doubt accounted for absence of damage to the grate, ashpan and smokebox. The brick arch also was intact. The pressure gauge was accurate, and safety valves satisfactory, except that the two back valves lifted at 15 lb. and 10 lb. below working pressure, 250 lb.

This class of engine has two water gauges fitted throughout with plug cocks. The two main cocks of each gauge are worked simultaneously by a handle fitted to the plug of the top (steam) cock and coupled to a short crank on the bottom (water) cock by a forked connecting link, shown in the accompanying drawing, Fig. 2.

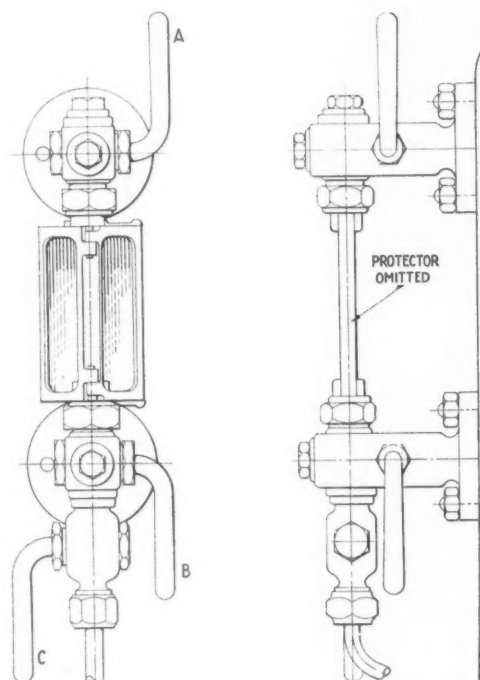
When fully opened, the handle is at an angle of 45 deg. above horizontal and moves down through 90 deg. to closed. These positions are hereinafter called Up and Down. Both handle and crank, in addition to fitting tightly on the square of the plugs, should be secured by taper pins. Travel is limited by coming in contact with the forks in the link.

After the accident, the left-hand gauge was found with handle down and therefore both cocks closed. (This is dealt with further below.) The gauge was assembled correctly, both handle and crank being properly secured in position by taper pins.

The handle of the right-hand gauge was up and bottom cock correctly open. This cock was out of phase with the top one, closed as a result of the handle being on the wrong square. This had the effect of showing water in the glass above the level of that in the boiler. The handle was a loose fit on the square of the top plug, not drilled to take a taper pin in any direction. On the other hand, the crank was a good fit on its plug and both were correctly drilled, but not pinned.

REPAIRS AND RENEWALS

The right-hand gauge column was renewed at Polmadie on March 5, 1947, by a fitter since deceased. It was not removed at Crewe in the November. The absence of the taper pin was overlooked. There is no reference to it on the 215 repair cards handed in since the engine left the works. Placing the handle on the wrong square appears to have coin-



TO TEST GAUGE COCKS

1. Shut top cock and bottom cock by pulling handles "A" and "B" backwards until horizontal.
2. Open drain cock by pulling handle "C" backwards until horizontal and water should disappear.
3. Blow through top cock by opening with handle "A" and close again.
4. Blow through bottom cock by opening with handle "B" and close again.
5. Shut drain cock with handle "C."
6. Open top cock and bottom cock with handles "A" and "B" and water should rise to level.

Fig. 1

suggestion that the noise might be the result of a leaking blower valve. The train left at 10.28 p.m., 3 min. late. Everything appeared normal at Symington, 6½ miles further, at 10.38 p.m., where the driver waved to the signalman. Six min. later the accident occurred, after a mile of slightly rising gradient, followed by a fairly easy descent of 2½ miles.

TECHNICAL DETAILS

Damage was restricted to the firebox, the crown of which was bulged downwards over an area of 37 in. by 20 in., and at the lowest point, more or less on

cided with renewal of the gauge glass at Polmadie on March 4, 1948, before which the engine worked to London on March 2, returning to Glasgow the next day. The four drivers concerned were emphatic that the gauges were satisfactory, except for a gland leak on the right-hand glass. A repair card included an item "right gauge glass to renew," and a fitter at Polmadie attended to it the following day. The engine was out of service until March 6, when it worked the 9.25 a.m. train to Carlisle. The driver, before leaving the shed, noticed that the right-hand gauge was full, with half a glass of water only in the left one. Testing both, he was unable to empty the right-hand glass. He thought the boiler was over full and concluded that the lower level was due to some defect, as he noticed the left gauge to be slow when tested. Unable, after working to Glasgow, to see the top of the water in the right-hand gauge he became suspicious and instructed his fireman to rely on the left-hand one. This, although slow, appeared to be reading normally. At Carlisle he reported "both gauge frames showing false water."

A fitter there found the same variations and as the right-hand glass did not empty when he opened the drain cock, although water flowed freely through the drain pipe, he also concluded that the boiler was over full. He then concentrated on the left gauge, and finding the drain pipe discharge slow, intended to renew drain cock and pipe. No new cock was in store, so he re-assembled the gauge, warning a driver, preparing the engine for returning, that it was not to be relied on. This information was passed on to other men. At Polmadie on March 7, a driver reported "left gauge glass column to examine, right gauge glass showing false water."

A leading fitter dealt with this card and handed it to a fitter, who suspected the left column from its slowness. He renewed the drain cock, but this did not have the desired effect. There was still a discrepancy between levels and the two men went to the engine together. The examination made by the leading fitter appears, however, to have been unsatisfactory and inconclusive. He admitted to finding the discrepancy and the left gauge slow, but was unable to give Mr. Moore a satisfactory account of the other gauge, beyond stating that it was not working properly. He left the fitter to "make as good a job of it as you can." Testing the waterways of both gauges, the fitter was not satisfied with the working of either column. He turned his attention to the right-hand gauge, as it was showing the higher level. He noticed that steam or water passed through the drain cock with the handle up or down. This proved conclusively that the handle was on the wrong square but he failed to realise that, and being frankly puzzled, went to the leading fitter, who said he would see to the engine himself and gave him something else to do.

Shortly after, a driver noticed the right-hand gauge full with $1\frac{1}{2}$ in. water in the left-hand. He told the leading fitter, who returned with him and found that water rose slowly in the left-hand glass and could not be made to reach the level of that on the right, which on this occasion was "working perfectly." He thereupon instructed another fitter to renew the left-hand glass, in case a washer out of position was forming an obstruction, and to test the waterway, but he added that the right-hand gauge was working satisfac-

torily. This fitter, when testing the waterway of the left-hand gauge, experienced some difficulty in inserting the wire. The handle had to be put nearly horizontal to bring the hole in the bottom plug into alignment with that in the body of the cock. The connecting link was found later to be short, but, at the time, he got the impression that both handle and cock were on the wrong squares, so that the former had to be down for the two cocks to be open. It was time for the engine to leave and as he considered it inadvisable to attempt to rectify, without further test to prove his conclusions, he placed the left gauge handle down and told the driver and fireman, who met with the accident later, that the gauge was wrongly coupled. Meeting the leading fitter, he told him of this, which apparently satisfied him, as he made no further examination himself.

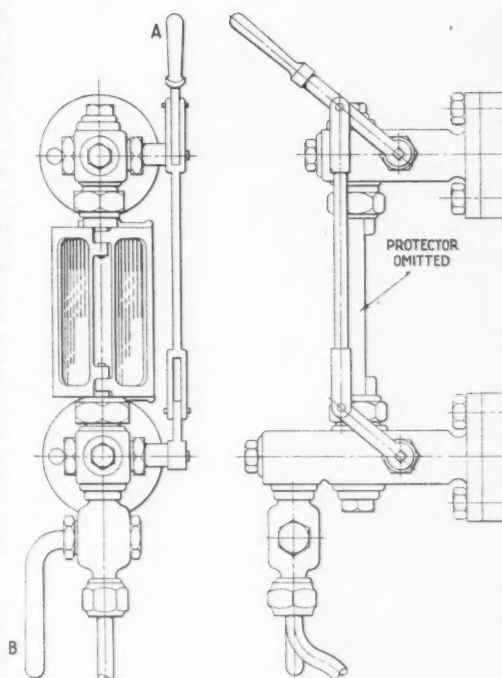
Although the fireman could not be questioned until two months after the accident, Mr. Moore found he had a remarkably clear recollection of events. He had heard what the fitter said and, trying the drain cock and finding the glass empty, regarded the gauge as out of use and paid no further attention to it. He relied solely on the right-hand one, testing it at intervals. He found nothing to cause him to doubt its efficiency. Water height showed little or no variation during the journey, not unusual with a light load and free steaming engine. When he directed his driver's attention to the sound of escaping steam, they suspected a broken firebox stay.

The fireman saw and heard little of the fitters' examination at Carstairs, but, so far as he was aware, his driver had no misgivings about proceeding. There was never any question of changing the engine. Although the blow continued, no steaming trouble was experienced. Apparently the two men thought there was plenty of water in the boiler. The collapse occurred just as the firehole doors were opened to recommence firing.

INSPECTING OFFICER'S CONCLUSION

There can be little doubt that the sound of escaping steam was due to the fusing of the front plug, $4\frac{1}{2}$ in. higher than the one at the back, due to the slope of the firebox crown. At Uddingston, the gradient starts rising at 1 in 107, tending to lower the water at the front end. Steam from this plug would be invisible because of the heat of the fire, and be drawn through the tubes 15 in. away. With the right-hand gauge showing a full glass, failure to suspect the fusible plugs is excusable.

Omission to drill the hole in the plug of the top right-hand cock was not an isolated case and doubtless led to a certain amount of slackness on the part of outstations concerning the fitting of pins, even



TO TEST GAUGE COCKS

1. Shut top and bottom cocks by pulling handle "A" until it is pointing downwards halfway between the horizontal and vertical.
2. Open drain cock by pulling handle "B" upwards until horizontal, and water should disappear.
3. Open top and bottom cocks by raising handle "A" slowly until it is pointing upwards halfway between the horizontal and vertical in order to blow through, and close again.
4. Shut drain cock by turning handle "B" downwards.
5. Open top and bottom cocks with handle "A" until it is pointing upwards halfway between the horizontal and vertical, and water should rise to level.

Fig. 2

when holes were available. Otherwise the initial mistake of placing the handle on the wrong square would hardly have escaped notice. Replacement of a glass does not necessitate removing handle, crank or link, but with the link removed, it unquestionably is easier to manipulate a spanner on the gland nuts.

Mr. Moore thinks that, in spite of his statement to the contrary, the fitter concerned took advantage of the handle being loose and moved it and the link out of his way when it would be easy for the crank on the bottom cock to be turned thoughtlessly without making a similar adjustment to the top plug, and result in the placing of the handle on the wrong square when reassembling. This would not reveal itself at the time, as the engine was out of steam, but there were other means of checking the assembly and the fitter must have been very careless when carrying out this repair. Mr. Moore feels, however, that he cannot be held actually responsible for the accident, as persistent reports against the gauges should have led to discovery of his mistake before harm resulted.

A most unfortunate coincidence was that the left-hand gauge link was short. It did not affect the efficiency of the gauge but, by causing it to be slow acting when tested, resulted in attention being diverted

to it from the far more serious defect in the other gauge.

The fitter at Carlisle did his best on March 7 and at Polmadie another almost traced the trouble. No responsibility is attached to either man and the latter's procedure throughout was to his credit. He did not hesitate to admit that he was unable to diagnose the trouble in either gauge and took the right course in so advising his leading fitter.

The other fitter at Polmadie, can hardly be criticised for not discovering the defect in the right-hand gauge. Apart from being told by the leading fitter that it was working correctly, the only instructions he received related to the other one. Nevertheless, he was seriously at fault in concluding so readily that handle and crank on the latter were wrongly coupled. He should have made exhaustive tests to prove his conclusions before passing such vital information to the enginem. He was not sufficiently careful in explaining why he had placed the gauge handle down, leaving them to think the gauge was useless, whereas, even had his conclusions been correct, it might still have served a useful purpose and prevented the accident. In consequence only the defective right-hand gauge was in operation.

Mr. Moore considers that grave negligence must be attributed to the leading fitter. He became aware of the serious complaint about false water level shortly after 2 p.m. and may be excused for assuming, at that stage, that there might be temporary obstruction in a waterway. Some two hr. later, he tested the gauges himself and finding water passing through both drain cocks, although slowly on the left, he should have been in no doubt that the discrepancy in levels was due to some less apparent cause. He had further evidence of this when informed of definite irregularities which a fitter could not understand, a fitter of seven years standing, with earlier practical experience as a fireman, whose report should have had special significance.

Nevertheless, the leading fitter continued to attend solely to the slow action of the left-hand gauge, in itself comparatively harmless and unlikely to have any bearing on the discrepancy of level. Later, he appears to have overlooked this aspect of the matter, neither seeking nor receiving any assurance that the levels agreed before allowing the engine to leave. He accepted without question the report from a much less experienced fitter, which did not tally with his own experiences, when he himself tested earlier, nor did it provide a solution to the problem confronting them during the afternoon.

Mr. Moore was able to test the right-hand gauge on another boiler on steam, with cocks out of phase, and found the results to be decidedly misleading, unless the cocks were manipulated with deliberate care and thought and the effect on the water in the glass closely watched. This, no doubt, explains, he thinks, why the defect did not reveal itself, either to the leading fitter, or the enginem, but in the case of the former it was inexcusable, as he was making a special examination to discover reasons for the discrepancy of levels and it was his duty to see that the defect was found and remedied before the engine was allowed to go into service. He failed in that duty and must be held primarily responsible for the accident. He had been a running shed fitter for 25 years before being appointed leading fitter at Polmadie, in 1946.

The enginem were in a different

position. They did not know the history of the case and were unaware of complaints against the right-hand gauge. They could not be criticised for normal testing in the course of their duties not revealing the defect.

RECOMMENDATIONS

Coupling of water gauge cocks may be beneficial in the event of a glass breaking, but it is for consideration whether the advantages outweigh certain disadvantages. The circumstances which led to this accident would not have arisen had the plug cocks been independent. To avoid risk of false readings, it is of great importance that the two cocks be either fully open or closed, and their positions are less easy to determine with a handle set at an angle, than with independently worked cocks (as shown in Fig. 1) having handles either vertical, or horizontal, according to whether the cock is open or closed. Furthermore, individual adjustment, sometimes desirable, is out of the question, and the standard instructions issued in 1931 on the subject of separate manipulation during testing had to be modified in 1942.

In any case, when coupled, the two cocks and link should be assembled in the works as a complete unit, and only fitted as such as out stations; this course already has been adopted in the Scottish Region. Mr. Moore recommends also that a stop be incorporated in the design of the cock, to ensure a more definite limit of travel for the plug than is provided by the fork of the link coming in contact with handle or crank. This would have the additional advantage of preventing the gauge column being assembled with either the handle or crank on the wrong square; it also would guard against the fitting of a link of incorrect length.

Track Renewal in Sevenoaks Tunnel

Engineering works, which involve relaying the up track through Sevenoaks tunnel, British Railways, Southern Region, were commenced on Thursday, November 25, and will continue until Friday, December 10. During this period it is necessary for a 15 m.p.h. speed restriction to be imposed, and consequently up trains are taking longer to run through the tunnel. As a result certain up morning business trains from the coast are starting earlier, and arriving in London at their booked times; other trains are leaving at their normal times and arriving in London up to 5 min. later than usual.

One Sunday, November 28, the tunnel was closed entirely and all steam trains were diverted to other routes; the same measure will be taken on December 5. Passengers to and from Charing Cross, Waterloo, Cannon Street, or London Bridge, to Sevenoaks will travel by electric trains, and those travelling between Sevenoaks, Hildenborough and Tonbridge will be conveyed by buses.

Sevenoaks tunnel is nearly 2 miles long and is situated between Sevenoaks and Hildenborough on the main boat-train route from London to Dover and from London to Hastings via Tunbridge Wells; it is the longest tunnel on the Southern Region and the up line through it is on a rising gradient of 1 in 150. The track requires re-railing every four years, and complete renewal of track and ballast takes place every eight years.

In the present case, both track and ballast are being renewed on the up line

and during the three weeks previous to the renewal, the work of removing dirty ballast and replacing with clean ballast was carried out during short weekend and week-night possessions. The method adopted for this part of the work made it unnecessary to impose speed restrictions.

Normally, the work of relaying the up line takes four weekends of short possession, resulting in the temporary displacement of traffic over a longer period. With the track laying and ballast packing machines now used by the Southern Region for this class of work, it has been found possible to complete it with two slightly longer week-end possessions, resulting in at least two weeks' reduction in the period of delay to traffic.

Posters advising passengers of the alterations to the train service have appeared at Southern Region stations, and pamphlets were obtainable on application.

R.S.A. Visits to Post Office (London) Railway

Members of the Railway Students' Association of the London School of Economics & Political Science made two visits to the Post Office (London) Railway during the evenings of November 17 and 24, and the events proved so popular that it was necessary for a third visit to be arranged for Wednesday, December 1. On each of these occasions, a thorough inspection was made of the railway facilities at Mount Pleasant post office embracing the repair depot, electrical installations and the switch cabin and station, where considerable traffic was being handled. The trains on this 6½-mile underground railway are run either as single-car, or two-car formations, and each car, which is 27 ft. in length, carries four mobile mail bag containers holding an average of 15 bags of letter mail, or 6 bags of parcels.

At times, as many as two of these trains was being dealt with at one platform, separate sections of which are concerned with parcels handling and with letters. To speed the traffic, moving-band conveyors and bag elevators are installed and the speed and efficiency of handling were impressive.

In the station area, trains are brought under the control of a switch cabin, though when running between stations, they are under automatic control and, to ensure deceleration at the station approaches, it is necessary for an upward gradient of 1 in 20 to be introduced, with de-energised conductor rail. A stopping train proceeds into the station at some 8 m.p.h. and on crossing to the platform berth section, which is dead, is halted by the application of automatic brakes.

The main running tunnels on this 2 ft. gauge line are 9 ft. dia. and near the stations branch into two 7 ft. dia. single-line tunnels, before running into the 21 ft. section of the stations. There are eight stations on the line, which extends from Paddington Station to the G.P.O. Eastern District Office, and it is estimated that in the course of a year the trains carry 35,000 mail bags a day.

LIFE OF GEORGE STEPHENSON.—Mr. John Rowland, 16, The Close, Radlett, Herts., is writing a Life of George Stephenson, and seeks unpublished letters, which he wishes to borrow for copying.

Parliamentary Notes

Railway & Canal Commission (Abolition) Bill

The Railway & Canal Commission (Abolition) Bill passed the committee stage in the House of Lords on November 16 and was reported to the House without amendment. The Bill was read the third time and passed on November 18.

Standing Committee on Iron & Steel Bill

Sir Charles MacAndrew (Ayr & Bute—C.) has been appointed Chairman of the House of Commons standing committee which is to consider the Iron & Steel Bill. He was Chairman of the standing committee which dealt with the Transport Bill.

The committee which is to deal with the Iron & Steel Bill consists of 50 members (30 Labour; 15 Conservative; two Liberal; two Liberal National; one Independent).

Questions in Parliament

Railway Porters and Cheese Ration

Mr. W. Teeling (Brighton—C.) on November 22 asked the Minister of Food why goods porters who did night duty, some for a fortnight at a time and others for a week at a time, at the Brighton railway goods depot, having been granted an extra cheese ration for one month, as was given to shunters and other railway employees, had now had that extra ration withdrawn.

Dr. Edith Summerskill (Parliamentary Secretary, Ministry of Food) in a written answer stated: The special cheese ration was withdrawn from porters at Brighton railway goods depot in April last because it was not known that they were wholly employed out of reach of canteen facilities. I find that they are so employed and the extra cheese ration is being restored.

Road Freight Rates

Mr. J. Harrison (Nottingham East—Lab.) on November 22 asked the Minister of Transport whether he would issue directions to the British Transport Commission that road freight rates were not to be raised above the level of railway rates for similar goods.

Mr. Alfred Barnes stated in a written answer: No, Sir. The Commission will, in due course, submit charges schemes to the Transport Tribunal. In the meantime, I see no reason for any general interference with the discretion of the Commission in regard to its road freight rates. As in the case of all other road hauliers, however, any road haulage charge made by the Commission may be challenged before the appropriate Regional Transport Commissioner, under the Road Haulage & Hire (Charges) Orders, 1942 and 1946.

Breaches of Iron & Steel Orders

Commander A. H. P. Noble (Chelsea—C.) on November 15 asked the Minister of Supply how many offers constituting breaches of the Iron & Steel Orders had been investigated by his price investigations office since January 1, 1946; on how many occasions had proceedings been instituted; and how many convictions had been obtained.

Mr. George Strauss: Eleven offers to sell iron and steel above controlled prices have been investigated, and it has been decided not to prosecute. Nine cases are still under investigation and I cannot say

yet whether or not proceedings will be instituted.

Commander Noble: Can the Minister say why it has been decided not to prosecute?

Mr. Strauss: Because it was considered that the evidence was not strong enough to obtain a conviction.

Sale of Steel Companies' Output

Mr. A. C. Bossom (Maidstone—C.) on November 16 asked the Minister of Supply what was the approximate proportion of the products of the 107 iron and steel concerns, proposed to be nationalised, which was being sold abroad; and how much was being sold in this country.

Mr. J. Jones (Joint Parliamentary Secretary, Ministry of Supply), in a written answer, stated: I give below the approximate proportions and tonnages for various categories of finished steel, based on the first half of 1948 (particulars of the export by the concerns of other products are not available):—

January-June, 1948
Output of Third Schedule Companies

	Approximate proportion of output sold abroad Per cent.	Approximate amount sold or used in the country (000 tons)
Plates	5	900
Sheets	9	590
Tin, terne, and black-plates	29	240
Other re-rolled products	4	2,760
Tyres, wheels, and axles	27	90
Wrought iron and steel tubes and pipes	30	180

The proportions of pig iron, steel ingots, and semi-finished steel exported are negligible.

Steel Companies' Subsidiaries

Mr. F. J. Erroll (Altrincham & Sale—C.) on November 15 asked the Minister of Supply (1) if he would publish a list of all the subsidiary companies in the United Kingdom owned by each of the companies listed in Schedule 3 of the Iron & Steel Bill; and (2) if he would publish a list of the subsidiary companies in overseas countries owned by each of the companies listed in the Third Schedule of the Iron & Steel Bill.

Mr. George Strauss: I will circulate lists of the subsidiaries in the United Kingdom and overseas which, according to my present information, are wholly owned by companies named in the Third Schedule of the Iron & Steel Bill.

Mr. Erroll: Can the Minister say roughly how many of these companies there are?

Mr. Strauss: I think the number is about 150.

Later, Mr. Strauss circulated lists, which were published in the Official Report.

Iron and Steel Companies' Overseas Subsidiaries

Mr. F. J. Erroll (Altrincham & Sale—C.) on November 8 asked the Minister of Supply which of the companies listed in Schedule 3 of the Iron & Steel Bill had wholly-owned subsidiaries in overseas countries.

Mr. George Strauss: As certain subsidiaries of Third Schedule companies are registered overseas, particulars of the ownership of their share capital are not readily available and my information as to wholly-owned subsidiaries may therefore be incomplete.

I will circulate the names of those companies which, according to my present information, have wholly-owned overseas subsidiaries.

Later Mr. Strauss circulated the follow-

ing list:—Guest, Keen & Nettlefolds Limited; Hadfields Limited; John Lysaght Limited; John Summers & Sons Ltd.; Richard Thomas & Baldwins Limited; Stewarts and Lloyds Limited; Millom & Askam Hematite Iron Co. Ltd.

Sale of Machine Tools

Colonel O. E. Crosthwaite-Eyre (New Forest & Christchurch—C.) on November 22 asked the Minister of Supply what reserve had been placed on items to be sold by auction at the recent sales of machine tools.

Mr. George Strauss (Minister of Supply): Reserve prices were placed on certain tools to avoid uneconomic sales. Publication of those prices would prejudice sales at future auctions where similar machines were being offered.

Colonel Crosthwaite-Eyre: If there were reserve prices, will the Minister explain why, for instance, 35 highly-priced machines, costing £2,000 apiece, required for aeroplane grinding, were sold at Stormy Down at an average price of £50 each?

Mr. Strauss: No, unless Colonel Crosthwaite-Eyre is prepared to give the details, and then I will look into it.

Colonel Crosthwaite-Eyre on November 22 also asked the Minister of Supply if he was satisfied that the 9,900 machine tools sold to trade purchasers and holding contractors had not been to any great extent subsequently exported.

Mr. George Strauss: Practically all these machine tools were sold with a proviso that they should not be re-sold within twelve months, and in the case of Lend-Lease tools export was forbidden for period of five years after the end of the war with Germany. I have no reason to believe that these conditions of sale have not been observed.

Colonel Crosthwaite-Eyre: In view of previous answers Ministers have given that these tools have not been exported, and that the only regulation the Minister has deals with tools for small arms, can the Minister give any guarantee that these tools have not been exported?

Mr. Strauss: I have no evidence that they have been exported, and I understand that there is practically no demand for them.

Colonel Crosthwaite-Eyre: How can the Minister have any evidence, since he has no power whatever to see that these tools are not disposed of?

Mr. Strauss: If Colonel Crosthwaite-Eyre has any evidence that the undertaking given by the purchasers of these tools has been broken, I will go into it; but, in the absence of such information, I do not propose to take any steps.

CANADIAN-BUILT LOCOMOTIVES FOR INDIA.

—An order for 100 steam locomotives, amounting to approximately \$14,000,000, for the Indian railways has been placed in Canada. This is the third large order to be placed in Canada by the Indian Government during the past 12 months, bringing to a total of approximately 40 million the amount of U.S.A. dollars coming to Canada through this source alone. Of the new order 60 locomotives will be built by the Montreal Locomotive Works, and 40 by the Canadian Locomotive Company, Kingston, Ontario. These locomotives will be for delivery in 1949 and production will follow the manufacture of the second Indian order. Both companies are now well into the production of their first Indian orders and shipments are in progress.

Notes and News

Assistant Works Manager Required.—An assistant works manager is required for a firm of railway rolling stock manufacturers. See Official Notices on page 651.

Senior Draughtsman Required.—A senior draughtsman, with experience in railway locomotive motion design, is required by a firm in Birmingham. See Official Notices on page 651.

Draughtsman (Civil Engineering) Required.—Applications from qualified candidates are invited for the post of draughtsman (civil engineering) by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. See Official Notices on page 651.

Institution of Locomotive Engineers.—A meeting of the Institution of Locomotive Engineers will be held at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m.; on December 15, when Mr. J. H. P. Lloyd will read a paper entitled: "Notes from a Works Manager's Diary."

Britannia Locomotive Batteries.—South Africa and Belgium are among the countries which recently have placed orders with Britannia Batteries Limited, Whitfield Street, London, W.1, for steel alkaline batteries for electric locomotives. The South African order specifies 12 batteries of 96 V. and 375 amp.-hr. capacity each, while the Belgian State Railways order consists of 26 batteries of 72 V. and 120 amp.-hr. capacity for coach lighting.

London Commercial Service Dinner.—The first annual dinner of the British Railways London Commercial Service was held recently at Pimm's Restaurant, Bishopsgate, E.C.2. Mr. W. H. Vine, Chief Representative in charge of the London Commercial Service (Goods & Parcels) Office, 13, Aldersgate Street, said that the new organisation was one of the first tangible expressions of the many plans being worked out by the Railway Executive for improving transport for industry. The London Commercial Service covered an area of 550 square miles. Each trader could now look to a single British Rail-

ways representative to answer his rail problems. Among the large number of guests were:

Messrs. G. Cornish and N. S. Taylor, Railway Executive; E. S. Hunt, London District Goods Manager, London Midland Region; A. E. Marriott, London City Manager, Eastern Region; F. H. Marshall, London District Freight Superintendent, Southern Region; H. H. Starr, London District Goods Manager, Western Region; L. J. Moorcock, London District Passenger Manager, Eastern Region; C. W. Powell, London Divisional Superintendent, Western Region; K. A. Kindon, London Suburban District Goods Manager, Eastern Region.

Increased L.M.R. Coal Traffic.—During the four weeks ended October 31, the London Midland Region of British Railways transported 58,853 more wagons of coal than in the corresponding period of last year; the total for the period was 546,414 wagons. The L.M.R. also carried 9,500 more wagon loads of coal for export than in the same period of 1947.

Transport Securities.—The Share & Loan Department of the Stock Exchange has been advised that all the accounts of British Transport Stock on the registers kept by the undermentioned bodies, representing stock arising from the conversion of the former securities, have been passed to the Bank of England:—

Grand Union Canal Company
Mersey Railway Company
North Devon & Cornwall Junction Light Railway
Southport & Cheshire Lines Extension Railway
Weymouth & Portland Railway

All correspondence in respect of the above accounts, therefore, should be addressed to the Bank of England, 18, Finsbury Circus, London, E.C.2.

Belfast & County Down Accounts.—The financial accounts and statistics of the Belfast & County Down Railway Company, for the nine months ended September 30, when the company was acquired by the Ulster Transport Authority, show gross receipts of £296,286, and expenditure at £370,166, giving a deficit of £73,880. Miscellaneous net receipts from rents, tolls, and transfer from compensation under the Irish Railways (Settlement of Claims) Act, 1921, reduced the deficit to £64,663. Income tax reserve over-provided

at £5,022, transfer from reserve for contingencies of £14,120, and transfer from general reserve fund no longer required of £56,358, gave a credit of £75,500, which, after deduction of the net deficit, left a credit of £10,837. This amount was taken up in interest, rentals, fixed charges, and dividends on guaranteed shares, leaving no balance to be carried forward.

Institute of Transport, Metropolitan Section.—The first annual dinner of the Institute of Transport, Metropolitan Section, and the visit of the President, will take place at the Abercorn Rooms, Liverpool Street, E.C., on December 17, at 6.45 for 7.15 p.m.

Uruguay Railways Hand-Over.—The ceremony of handing over the documents containing the official ratification by the British companies for the acquisition of the Uruguayan railways by the Government took place at Montevideo on November 18. The President of the Uruguayan Republic, the Ministers for Foreign Relations, Finance, and Public Works, and the British Ambassador were present.

British Transport Commission Statistics.—We regret that in our summary of British Transport Commission traffics published on page 567 of the issue of November 19 it was stated that merchandise receipts had decreased by £1,264,000; this should have read £736,000. It was also stated that Inland Waterways' tolls and charges had yielded £154,000 more than in the equivalent period of 1947; this should have read £145,000.

Workmen's Tickets.—Mr. Alfred Barnes, Minister of Transport, has announced that, as a temporary measure during the spreading of the industrial electricity load this winter, workmen's tickets will be issued outside the normal hours on rail and road services controlled by the British Transport Commission. These tickets will be issued on weekdays and Sundays on the production of a card of identity issued or authorised by the undertaking concerned and signed by their employer, to workmen coming within the scheduled categories who are required to work shifts or regular turns of duty commencing at any time of the day.

Collision at Woolwich Arsenal Inquiry.—On November 26 Colonel A. C. Trench, an Inspecting Officer of Railways, opened the Ministry of Transport inquiry into an accident at Woolwich Arsenal Station, Southern Region, on November 18, in which the 12.28 p.m. train from Charing Cross to Dartford came into collision with the rear of the 12.17 p.m. Cannon Street to Gravesend train, which was standing in the station. The collision was reported in our November 26 issue. The guard of the Dartford train said that at Woolwich Dockyard Station he did not see the starting signal before his train left the station. The signalman on duty in the Woolwich Arsenal box said that when he got the bell for the 12.17 p.m. both lines were clear, and the train was eventually accepted by Plumstead. He was about to carry on with his duties when he "had a bell from Sandstreet" that the 12.28 was coming. Later, while he was washing his hands, he saw the 12.17 come in. Next, he remembered hearing a bang, and looking up saw smoke coming from the rear of the 12.17. Leading porter at Woolwich Dockyard Station said that he did not give the "right away" to the 12.28. He was the only man on duty, and assumed that the guard of the train, whom he had not seen, had signalled the motorman off. Colonel

London Commercial Service Dinner



A group at the first annual dinner of the British Railways London Commercial Service (see paragraph above). Left to right: Messrs. C. W. Powell, W. H. Vine, H. H. Starr, A. E. Marriott, K. A. Kindon, E. S. Hunt, N. S. Taylor, and G. Cornish

OFFICIAL NOTICES

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

DRAUGHTSMAN (CIVIL ENGINEERING) required by Nigerian Government Railway, Capital Works, for one tour of 18 to 24 months in the first instance. Fixed basic salary according to age and experience between £600 and £970 a year, including Expatriation pay. Outfit allowance £60. Free passages. Candidates must have had at least five years' experience in drawing office of a Civil Engineering Railway Department (or Consulting Engineers or Contractors with practice in railway work). Knowledge of design and construction details of civil engineering structures and railway track work is required, including ability to take off quantities, prepare estimate and draft general specifications. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/17417 (3D) on both letter and envelope.

URGENTLY required: Wood Incising Machine similar to "Robinson" S.B. No. 1 size.—Box 227, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

LARGE Midland Firm of Coachbuilders require Draughtsmen experienced in the design and construction of public service vehicles, both composite and all-metal. Please reply details of age, experience, and salary required to Box 491, T. & G., 101, St. Martin's Lane, London, W.C.2.

THE RAILWAY HANDBOOK provides the railway student with a collection of useful statistics and information relating to the railways of Great Britain and Ireland. In addition, in matters of international interest, such as speed and electrification progress, the book extends its scope to cover the whole world in order to present a complete picture of these increasingly-important developments. 120 pp. Dy. 8vo. Paper covers. Price 5s. By post 5s. 3d.

RAILWAY SIGNALLING AND COMMUNICATIONS INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linemen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pp. Many illustrations. Cloth, 8s. By post 8s. 6d.

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Employment Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

SENIOR DRAUGHTSMAN required with experience in Railway Locomotive Motion Design. Apply by letter to **BRITISH TIMKEN LIMITED**, Cheston Road, Aston, Birmingham, 7.

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THE EVOLUTION OF RAILWAYS. Second edition, revised and enlarged. By Charles E. Lee. Traces the germ of railways back to Babylonian times. Cloth, 8½ in. by 5½ in. 72 pp. Illustrated. 6s. By post 6s. 4d.

Trench commented that it was "very mysterious," in view of the fact that the guard of the Dartford train had said that he had received the "right away" from someone on the platform.

"Merchant Navy" Class Engine Named.—The first of a new series of "Merchant Navy" class Pacific locomotives was named *New Zealand Line* at Waterloo Station, Southern Region, on November 24, by Mr. H. S. Whitehouse, Chairman of the New Zealand Shipping Co. Ltd. Mr. Whitehouse was received by Mr. John Elliot, Chief Regional Officer, Southern Region, and other officers of the Region. Guests at the ceremony included Mr. William Jordan, High Commissioner for New Zealand.

Railway Debating Societies at Central Hall.—The joint debate between British Railways, Southern Region, Lecture & Debating Society and the Western Region, London Lecture & Debating Society, which, as reported in our November 26

issue, is being held at the Central Hall, Westminster, on December 9, will commence at 5.45 p.m. The motion: "That a lifetime spent in the employment of a railway tends to produce a narrow outlook on life," will be proposed by Mr. B. Seymour, of the Western Region, and seconded by Mr. R. Hyder, Southern Region; it will be opposed by Mr. R. Shervington, Southern Region, and Mr. A. E. Schafer, Western Region. Leading speakers will be limited to twelve min. each and their assistants to eight min. The chair will be taken by Colonel Sir Eric Gore Browne, former Chairman of the Southern Railway.

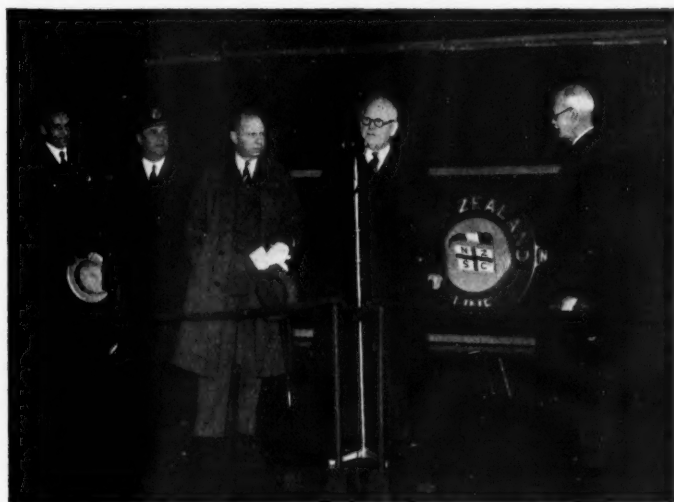
Reducing Consumption of Electricity.—The London & South Eastern Regional Board for Industry is asking industrial and commercial firms in its area, which comprises Kent, Sussex, Surrey, and Greater London, to reduce their consumption of electricity between 7 a.m. and 7 p.m. as from December 1. Commerce, which presumably implies all premises which are neither industrial nor domestic, is requested

to limit itself to 50 per cent. of installed capacity during the period. Industrial consumers are asked to cut their demand by 20 per cent. The national peak hours for consumption are 8 a.m. to 12 noon and 4 p.m. to 5.30 p.m., but the hours for the South Eastern Region are longer because, it is said, of the circumstances of industry and commerce in the Region. According to a statement issued by the Board's Electricity Sub-Committee, industrial firms can play their part by installing auxiliary generating plant, transferring processes involving a heavy load to hours outside the restricted periods, re-arranging working hours, and, if possible, introducing night shifts. Commercial firms can best reduce their consumption by switching off lights, fires, and all electrical appliances not actually required, and, where possible, by the replacement of filament lamps by fluorescent lighting.

Beira Railway Sale.—The Portuguese Government has acquired for £4,000,000 cash the rights of the Beira Railway Company. At the date of the last balance sheet, September 30, 1947, a total of £1,714,100 of 5 per cent. first debenture stock was outstanding, so that £2,285,900 of the purchase price will remain for distribution to the shareholders after paying off the debentures. As the capital consists of 1,050,000 shares of no par value the distribution in respect of the African assets will amount to approximately 44s. a share. Assets in London were shown at £1,401,360, and liabilities were £603,882, giving a surplus of £797,478. The company also owns an hotel in Beira, valued in the balance sheet at £53,215, which has not been included in the sale of the African assets. There is a liability in respect of contribution to the Rhodesian Railways for non-contributory staff pension fund, which was calculated at September 30, 1942, as being discharged by an annual payment over 25 years of £18,600. It is understood that this liability has been increased by a quinquennial valuation since 1942.

Rail Accidents in Fog.—Dense fog, which had covered the country for more than a week and dislocated many train services, was responsible for three accidents on November 30. The 5.50 p.m. train from Manchester London Road to Buxton, London Midland Region, ran into the rear of the 5.17 p.m. from Manchester London Road to Buxton, which was standing in Stockport Station. Four passengers were killed and 50 injured, of whom 21 were detained in hospital. The three end

Naming of Locomotive "New Zealand Line" at Waterloo



The High Commissioner for New Zealand, Mr. William Jordan, speaking at the naming of the locomotive "New Zealand Line" at Waterloo Station last week. On the right is Mr. H. S. Whitehouse, Chairman of the New Zealand Shipping Co. Ltd. To the left are Mr. John Elliot, Chief Regional Officer, Captain H. Payne, Commodore of the Dover and Folkestone fleets, and Mr. R. M. T. Richards, Deputy Chief Regional Officer, Southern Region (See paragraph above)

coaches of the stationary train were badly damaged, but did not fall over the high viaduct spanning the town. On the Western Region, the 4.10 p.m. Paddington—Birkenhead express collided about 200 yd. from Lapworth Station with a light engine running in the same direction. The leading coach of the express was damaged and passengers trapped in the front half were extricated by rescue squads; eight passengers were taken to hospital. The driver and fireman of each engine received facial injuries. A Southern Region Portsmouth—Waterloo electric train ran into the 1.25 p.m. Weymouth—Waterloo express between Clapham Junction and Queens Road Battersea Stations. There were no casualties, but a resulting short circuit began a fire at Clapham Junction electrical substation, causing a loss of current and the cessation of all services from Waterloo for some hours.

Forthcoming Meetings

- December 3 (Fri.).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 6 p.m. Discussion on: "Control of Production," by Mr. S. W. Lister, Member of Council.
- December 4 (Sat.).—Electric Railway Society, at the Fred Tallant Hall, Drummond Street, London, N.W.1, at 3 p.m. Annual General Meeting.
- December 4 (Sat.).—Stephenson Locomotive Society; annual dinner at the Old Bell Restaurant, Holborn, at 6.30 p.m. for 7 p.m.
- December 6 (Mon.).—Institute of Transport, Metropolitan Section, at Livingstone House, Broadway, S.W.1, at 5.30 p.m. for 6 p.m. "Some Possible Influences of Railways on the National Plan," by Mr. R. B. Hounsfield.
- December 7 (Tue.).—Institution of Civil Engineers, Railway Engineering Division, Great George Street, Westminster, S.W.1, at 5.30 p.m. "Renewal of Ballast and Track by Mechanical Means in Polhill Tunnel," by Mr. A. H. Cantrell; "The Use and Maintenance of Civil Engineering Plant on Railway Works," by Mr. A. G. Ticehurst.
- December 8 (Wed.).—Institution of Railway Signal Engineers, Provincial Meeting in the Derby Railway Institute, Railway Terrace, Derby, at 5.45 p.m. "Question and Answer": A selection of signaling questions submitted by members will be discussed and answered.
- December 8 (Wed.).—Permanent Way Institution, London Section, at Denison House, 296, Vauxhall Bridge Road, S.W.1, at 6.30 p.m. "Concrete Grouting of Railway Tracks," by Mr. R. C. Blyth.
- December 9 (Thur.).—Institute of Transport, at the Jarvis Hall, 66, Portland Place, London, W.1, at 5.30 p.m. Henry Spurr Memorial Lecture: "Premises for the operation and maintenance of public service vehicles," by Mr. S. Kennedy.
- December 9 (Thur.).—British Railways, Southern Region, Lecture & Debating Society and British Railways Western Region, London Lecture & Debating Society, at the Central Hall, Westminster, at 5.45 p.m. Debate: "That a lifetime spent in the employment of a railway tends to produce a narrow outlook on life."

Railway Stock Market

After further gains established in British Funds, markets, generally, turned easier at the beginning of the week, buyers holding off pending the new Stock Exchange account. Gilt-edged stocks showed declines of $\frac{1}{2}$ from recent levels including the nationalisation stocks. The extent of the rise in British Funds in recent weeks had led to suggestions in the market that official support may have been in evidence. On the other hand, it is pointed out that, partly owing to Argentine rail pay-outs, there has been a considerable volume of money-seeking investment, and the bulk of this has gone into gilt-edged stocks.

There has been little business passing in foreign railway stocks. Beira Railway bearer shares, which earlier in the year were over 65s. on optimistic break-up value estimates, and which last week were 58s. 9d., have come back further on the view that, after allowing for repayment of the debentures, the total break-up value of the shares may not exceed 50s. The railway has been sold to the Portuguese Government for £4,000,000 and a full explanatory statement will be issued.

In the absence of any further take-over rumours or similar developments the market in Brazil rail stocks has been much quieter. Leopoldina ordinary was back to 11 $\frac{1}{2}$, with the preference stock at 36, the 4 per cent. debentures 75 $\frac{1}{2}$, and the 5 per cent. Terminal debentures 71 $\frac{1}{2}$. Great Western of Brazil shares also receded to 104s. 6d., but San Paulo ordinary stock was steadier at 158, and elsewhere B.A. Central 5 per cent. debentures have marked 23 and Mexican Railway 6 per cent. debentures 82 $\frac{1}{2}$. Paraguay Central 6 per cent. debentures changed hands at 41 and United of Havana 1906 debentures around 15 $\frac{1}{2}$. Manila Railway "A" debentures were 83, and the preference shares 9s., while Antofagasta ordinary eased to 9 $\frac{1}{2}$ with the preference stock at 58. Central

Uruguay stocks reflected a little selling. Canadian Pacific remained active at close on 21 $\frac{1}{2}$.

Road Transport shares attracted a good deal less attention, those of the operating concerns again moving lower on balance, due to selling on the fear that it may be some time before British Transport makes an offer for minority shareholdings in the companies whose shares are now virtually all acquired following the big Tilling deal. Shares of operating companies in the B.E.T. group also have moved lower where changed, but declines on balance were relatively small. After a further drop B.E.T. deferred stock showed a rally to £1,930. There was buying of Thomas Tilling, which were around 122s., and, after declining to 109s. 9d., Scottish Motor Traction were inclined to strengthen.

Iron and steels came in for a good deal less business and in some cases eased below their estimated take-over prices. The news that some non-steel assets will not be nationalised has made it difficult to judge the value of shares of iron and steel companies in the nationalisation list. Nevertheless, the general belief is that in cases where there may be a reprieve from nationalisation of some assets, the shares should be quoted well above their take-over levels. Guest Keen were 48s. 3d. as compared with the 49s. 1d. take-over level, Stewarts and Lloyds, 56s. 7 $\frac{1}{2}$ d., Colvilles, 37s. 9d., United Steel, 30s. 1 $\frac{1}{2}$ d., and Firth Brown, 78s. 3d. Among shares outside nationalisation, Tube Investments continued to change hands slightly over £6 $\frac{1}{2}$ and Vickers were 32s. 6d.

Beyer Peacock changed hands around 24s. 9d. and the 5 $\frac{1}{2}$ per cent. preference marked 26s. North British Locomotive were close on 25s., and Vulcan Foundry 27s. 9d., while Charles Roberts continued to change hands around £7 $\frac{1}{2}$ and Gloucester Railway Carriage & Wagon shares were 63s. British Aluminium at 50s. have remained under the influence of the big success of the debenture issue.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date				
				Total this year	inc. or dec. compared with 1946/47		Total 1947/8	Increase or decrease			
South & Central America	Antofagasta...	811	21.11.48	£ 64,090	—	£ 1,462	47	£ 2,566,330	+	£ 503,156	
	Bolivar	174	July, 1948	\$28,960	—	\$69,357	30	\$471,287	—	\$301,893	
	Brazil	—	—	—	—	—	—	—	—	—	
	Cent. Uruguay	970	6.11.48	32,712	+	2,978	18	595,105	—	7,652	
	Costa Rica	281	Sept., 1948	34,083	+	4,533	13	1,111,619	—	18,546	
	Dorada	70	Oct., 1948	32,756	+	5,956	44	273,241	—	27,659	
	G.W. of Brazil	1,040	20.11.48	42,100	+	1,700	46	1,524,200	—	24,000	
	Inter. Ctl. Amer.	794	Sept., 1948	\$945,329	+	\$46,210	39	\$10,114,948	+	\$203,761	
	La Guaira	22½	Oct., 1948	\$109,661	+	\$21,862	43	\$1,048,517	—	\$27,377	
	Leopoldina	1,920	20.11.48	55,027	+	742	46	2,600,198	—	478,354	
	Midland Uruguay	319	Sept., 1948	19,608	+	3,123	12	67,355	—	16,721	
	Nitrate	382	15.11.48	12,298	+	3,234	45	271,294	+	77,060	
	N.W. of Uruguay	113	Sept., 1948	5,686	—	1,213	12	16,335	—	1,989	
	Paraguay Cent.	274	19.11.48	£106,576	+	£37,675	20	£2,021,857	+	£792,999	
Canada	Peru Corp.	1,059	Oct., 1948	205,602	+	27,225	17	753,073	+	56,933	
	Salvador	100	Aug., 1948	c80,000	—	c2,000	9	c165,000	+	c8,000	
	San Paulo	153½	—	—	—	—	—	—	—	—	
	Talcal	156	Oct., 1948	7,970	+	115	17	31,730	+	7,460	
	United of Havana	1,301	20.11.48	42,811	—	19,889	20	880,234	—	366,340	
	Uruguay Northern	73	Sept., 1948	1,072	+	52	12	3,308	+	111	
	Canadian National...	23,473	Aug., 1948	10,110,000	+	855,250	35	77,676,250	+	5,854,000	
	Canadian Pacific	17,037	Sept., 1948	8,499,750	+	1,556,500	39	63,896,750	+	5,664,750	
	Various	Barsi Light	202	Oct., 1948	26,610	+	12,187	31	181,702	+	7,717
		Beira	204	Aug., 1948	115,987	+	2,924	47	1,287,270	+	246,785
Egyptian Delta		607	30.10.48	19,211	+	1,455	26	328,731	+	31,899	
Gold Coast		536	Sept., 1948	165,446	+	21,792	26	1,185,462	+	258,231	
Manila		—	—	—	—	—	—	—	—	—	
Mid. of W. Australia		277	Sept., 1948	29,589	+	5,512	13	82,246	+	16,684	
Nigeria		1,900	Aug., 1948	403,545	+	97,720	21	2,205,705	+	483,370	
Rhodesia		2,445	Sept., 1947	643,980	+	102,833	52	6,787,603	+	612,938	
South Africa	13,347	6.11.48	1,381,500	+	29,864	32	41,914,244	+	2,457,635		
Victoria	4,774	June, 1948	1,358,791	+	248,144	52	—	—	—		

+ Receipts are calculated @ 1s. 6d. to the rupee